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**GROUND SUPPORT EQUIPMENT  
LOGISTIC MANAGER'S HANDBOOK**

September 1970

Prepared for  
NAVAL AIR SYSTEMS COMMAND  
under Contract N00019-69-C-0473



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John P. McGormick  
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## CHAPTER ONE

### INTRODUCTION

↙ This manual has been prepared to serve Ground Support Equipment Logistics Division personnel in the following ways: (1) as an introduction and *instruction guide for personnel* new to logistics policies and procedures of the Division, and (2) as a guide to procedures and responsibilities in the conduct of those activities required for proper logistics planning, development, acquisition, and incorporation of ground support equipment into the fleet. ↗

Ground Support Equipment (GSE) will be defined in the soon-to-be-released OPNAVINST 4790.2 (the "new" NAMP) as follows: GSE includes all equipment on the ground required to make a weapons system, support system, subsystem, or end-item of equipment operational in its intended environment. This includes all equipment required to install, launch, arrest (except Navy shipboard and shorebased launching and arresting equipment, less missile target launching equipment), guide, control, direct, inspect, test, adjust, calibrate, appraise, gauge, measure, assemble, disassemble, handle, transport, safeguard, store, actuate, service, repair, overhaul, maintain, or operate the system, subsystem, end item, or component. This definition applies, regardless of the method of development, funding, or procurement. GSE is categorized as common (general purpose) and peculiar (special purpose); within these categories may exist *developmental* (no Government-approved specification/drawing) and standard (with Government-approved specification/drawing). The following are excluded from the definition of GSE:

- (1) Common powered and nonpowered handtools
- (2) Housekeeping items
- (3) Office furniture and equipment and items common to all activities defined in applicable tables of allowance, and which are required as indirect support
- (4) Common production tools and tooling such as lathes, drills, presses, plating equipment, grinders, induction heaters, etc.\*
- (5) Items which are used only by the contractor
- (6) Personal equipment (headsets, microphones, etc.)
- (7) Selected Section "M" equipment

The effectiveness of the GSE management program lies in the degree of readiness and use of GSE in the support of the weapon system to which it is assigned. This support can be measured in quantitative terms by identifying the needs of GSE managers at all maintenance levels. The availability of proper data enables judgments to be reached regarding the amount of maintenance resources expended in the support of GSE, the readiness posture achieved, and equipment use.

\*Those common production tools listed above that are used in direct support of aeronautical equipment, that is, those listed in the ADMRL/IMRL program are considered to be GSE.

This manual describes the way in which GSE is managed within the NAVAIR Logistics/Fleet Support Group. The manual consists of eight chapters.

Chapter Two outlines the growth of the logistic concept within the Department of Defense, and the organizational changes which have resulted. Chapter Three describes the NAVAIR organizational structure, with emphasis on those organizational entities related to GSE and to the divisions within the Logistics/Fleet Support Group (AIR-04) and their interaction with field activities. Chapter Four contains procedures for accomplishing those operations that occur most often in providing for and assuring adequate logistics support of GSE. Chapter Five is a Glossary of terms commonly used in the management of Ground Support Equipment. Chapter Six is a directives index, containing reference numbers, dates, and subjects for instructions, notes, specifications, and standards which are referenced in the text of Chapter Four. Chapter Seven is an alphabetical list of abbreviations and acronyms used in the manual. Chapter Eight is an index.



## CHAPTER TWO

### BASIC LOGISTIC CONCEPTS

#### 2.1 INTRODUCTION

The basic concepts of logistics are the result of an evolutionary process that has accelerated greatly since World War II. Changes having broad impact on logistics continue to develop as early innovations prove to be less effective than anticipated. The two categories in which the greatest changes have occurred are organization and procurement. In the category of organization, authority and control have become more tightly centralized, while in the area of procurement, Concept Formulation and Contract Definition, which have multi-billion dollar implications, are the most recent innovations.

DoD Directive 4100.35 describes Integrated Support as: "...a composite of the elements necessary to assure the effective and economical support of a system or equipment at all levels of maintenance for its programmed life cycle. It is characterized by the harmony and coherence obtained between each of its elements. . ."

To understand how and why current concepts developed, and their relationship to Integrated Logistics Support — the discipline in which the Ground Support Equipment Logistician must become proficient — some acquaintance with the sequence of events since World War II is necessary. These events and the current organization are treated following a brief history and definition of the term logistics, and a statement of the basic principle that every member of the Navy's logistic team should know (Section 2.2). Integrated Logistic Support is then treated in broad outline, in preparation for detailed explanation of procedures that are presented in Chapter 4.

#### 2.2 BACKGROUND

According to Webster's dictionary, the word "logistics" is derived from the Greek word *logistike*, meaning the science or art of a calculating. Other authorities cite different origins, but all agree that calculation is basic to the practice of logistics. With the advent of Integrated Logistic Support as a defined discipline, new emphasis on calculation — in the sense of quantification of logistic elements needed to arrive at cost-effective decisions — has been required of all logistic planners.

#### 2.3 THE NAVY'S GUIDING LOGISTIC PRINCIPLE

The guiding principle that provides the ultimate reference for naval logistic policy is most clearly stated in the following quotation:

"There is one basic principle frequently stated but often lost sight of. This principle is that the entire Navy Department and the Shore Establishment of the U.S. Navy

have only one reason for existence and one function to perform, which is "To provide adequate logistics support of all kinds to the Naval Operating Forces so that they can perform their assigned mission of fulfilling the Navy's role in support of Fundamental National Policies and interests throughout the world."

—(CNO to SECNAV letter Serial 4582P21 of 19 Oct 1953)

## 2.4 DoD LOGISTIC ORGANIZATION, 1947 TO 1958

The logistic problems of the military are the concern of every taxpayer. Millions of citizens served in the Armed Forces during World War II, and many of them observed apparent examples of waste, while their relatives at home witnessed competition between the services for the products of industry and uneconomic practices in industry generated by haste to meet military schedules. Such observations contributed to a mounting tide of criticism of military logistic practices, in general and in particular. Perhaps the most potent factor influencing the decision to establish a Secretary of Defense over the three services was this kind of criticism and the accompanying demand for a single source of logistics policy direction, particularly in the area of procurement.

The Department of Defense was created by Act of Congress in 1947. Prior to that, numerous suggestions had been made for radical changes to affect economy in logistics management. One of these was for a Service of Supply, which would function as a fourth service. Another was for a separate civilian agency for supply and services to the military. In the 1947 Act, no specific approach was recommended by the Congress; the solution was to be devised by the Secretary of Defense under the authority given him to determine policy.

The scientific revolution was one of the problems faced by the Secretary of Defense. Maintenance costs for the forces-in-being were increasing. For example, it was known during World War II that the cost of maintaining electronic equipment in the field was from 10 to 100 times the cost of procuring such equipment. As new and more complex equipment was introduced, this trend continued. A systematic attack on this and similar problems was needed.

It soon became apparent that broad policy direction was not enough. The Secretary of Defense had very limited practical control over the logistic practices of the military services. Additional legislation in 1949 and 1952 changed the concept of the Secretary's role from one of coordinator to one of straight line administrator, and provided him with nine Assistant Secretaries, one of whom was made specifically responsible for logistics. The task assigned to the Assistant Secretary of Supply and Logistics was defined as follows in the Semi-Annual Report of the Secretary of Defense, January 1 — June 30, 1953:

"To provide advice and assistance to the Secretary of Defense in most of the areas formerly assigned to the Munitions Board, including specifically the areas of production planning procurement, production, distribution, and transportation. The office will be responsible for making recommendations, in cooperation with the Secretaries of the Military Departments, regarding the modernization of the entire military system of supply, including the establishment of a single catalogue and standardization of item specifications in the military departments".

Measures to consolidate the logistics of services and supplies common to all the military services were quickly put into effect.

Responsibility for development of a Federal Catalogue System, and for standardization of common material, was assigned to the Armed Forces Supply Support Center. The single-manager concept was introduced, and responsibility for designated support services was assigned to the appropriate components of the military services. Eventually, the nine single-manager assignments listed below were made:

Area of Service	Assigned To
Air Transport	Air Force
Clothing and Textiles	Army
General Supplies	Army
Industrial Supplies	Navy
Medical — Dental	Navy
Petroleum	Navy
Sea Transport	Navy
Subsistence	Army
Traffic Management	Army

The objectives of the single managers were (1) to eliminate duplication of effort in the military departments, and (2) to improve effectiveness and economy of service operations throughout the Department of Defense.

It was estimated that by the end of FY 1961, the single managers had saved — through reduction of inventories and other one-time economies — almost \$546 million. Annual savings of about \$24 million was expected to continue.\*

## 2.5 DoD LOGISTIC ORGANIZATION, POST-1958

The Defense Reorganization Act of 1958 instituted sweeping changes in the authority of the Secretary of Defense. The Act was intended to assure constant readiness and flexibility as strategy, tactics, and management procedures changed.\*\*

The following three major principles are involved:

- (1) It is recognized that separate ground, sea, and air warfare are gone forever — strategy and tactical planning must be completely unified and combat forces organized into unified commands, prepared to fight as one, regardless of service affiliation.
- (2) The best means of providing for management of administration, training, and logistical functions is through the departments of the Army, Navy, and Air Force.
- (3) The Secretary of Defense, as the President's agent, must be responsible for direction of the nation's military effort. The Service Secretaries are his principal agents for management; the Joint Chiefs of Staff are his military advisers; and key officials in the Office of the Secretary of Defense (OSD) are his civilian advisers in specialized fields.

\*Secretary of Defense Report for FY 1961.

\*\*A bibliography of publications dealing with the military scientific revolution and a discussion of the politics of DoD changes may be found in *The Management of Defense*, John C. Ries, Johns Hopkins Press, 1964.



The Reorganization Act of 1958 gives the Secretary of Defense full authority to direct and control the Defense Establishment. There are only three statutory limitations on his authority. First, he shall not merge the military departments. Second, he shall not establish a single Chief of Staff, an overall Armed Forces General Staff, or any other military staff than the Joint Chiefs. Third, the statutory functions of the military services shall not be changed without review by the Congress.

The chain of command is from the President through the Secretary of Defense and the Joint Chiefs of Staff to the Unified and Specified Commands. These commands are as follows:

#### The Unified Commands

Alaskan Command	Continental Air Defense Command
Southern Command	Atlantic Command
European Command	Pacific Command
Strike Command	

#### The Specified Command

Strategic Air Command

Broad management changes resulted from passage of the Reorganization Act. Determinations regarding new weapon development became the prerogative of the Secretary of Defense, assisted by the Deputy for Research and Engineering (DDR&E). The Defense Communication Agency (DCA) was established to handle common communication services. The Defense Intelligence Agency (DIA) took over combined intelligence functions. The Defense Supply Agency (DSA) was established to broaden control over supply functions. The name of the agency providing atomic weapons was changed to Defense Atomic Support Agency (DASA). These are the offices through which the Secretary of Defense implements his policies for services and support of the Armed Forces.

The DDR&E is an integral part of the staff of the Secretary of Defense. DASA, DIA, and DCA report to the Secretary of Defense through the Joint Chiefs of Staff. DSA, however, reports directly to the Secretary.

In the annual report of the Secretary of Defense for FY 1965, the basic aim of the organization was stated as follows: "The organization of the DoD reflects a management philosophy that stresses the desirability of having decisions made at the lowest echelon that has the necessary ability and information to apply approved policy."

To complete the picture of logistics management from the OSD level, the role of financial management must be mentioned. Approved force levels and budgetary limitations are contained in the Five-Year Defense Program (FYDP), which is a summation of all approved programs for all the services, projecting force levels for eight years and financial levels for five years. The figures in the FYDP are the culmination of effort involving every planning level of the military services, the Service Secretaries, and the OSD. Every year the FYDP must be adjusted to reflect changes in plans and appropriations — a continuing task for a large body of financial specialists.

## 2.6 FUNCTIONS OF THE DEFENSE SUPPLY AGENCY

In August 1961, the decision was announced to establish a Defense Supply Agency to take control of the functions of the eight single managers for common supplies, the Traffic Manager, the Armed Forces Supply Support Center, and the Surplus Property Sales Offices. These combined functions covered procurement and distribution of 1.2 million items, with annual sales of \$3 billion and an inventory of \$4.3 billion.

Since 1961, the DSA has had only minor organizational changes. It has been fully occupied with the enormous task of administering its functions efficiently. Currently, the DSA manages, through its "Centers" (Defense Fuel Supply Center, etc.) the following categories of common supplies:

Subsistence	Clothing and Textiles
General	Automotive
Construction	Petroleum
Medical	Industrial
Electronics	

The military services are assigned single-manager responsibilities for the following common service functions:

Function	Manager
Military Air Transport (MAC)	USAF
Military Sea Transport (MSTS)	Navy
Military Traffic Management and Terminal Service (MTMTS)	Army

The DSA represents that part of the supply line closest to the producer, while the military services represent the part closest to the consumer. DSA "wholesales" items to the services, which in turn "retail" them to the operating forces. All overseas supply systems and retail distribution in the continental United States are controlled by the military services. DSA controls wholesale distribution in the continental United States.

An important adjunct to the DSA is the General Services Administration which procures common items (such as general-service computers, office furniture, and paper) for all other agencies of the Federal government. In the first year of the arrangement, the GSA purchased \$600 million worth of supplies for the DoD. Recently, GSA has been more completely integrated with the DSA for management of additional items such as paints and hand tools.

## 2.7 LOGISTIC REORGANIZATION OF THE MILITARY SERVICES

Following the Reorganization Act of 1958, the military services were directed to reorganize their logistic support channels and achieve commonality of management structure. The reorganizations were made in the following sequence: USAF 1961, Army 1962, Navy 1963.



As a result of the reorganization, the Chief of Naval Material was designated as the single "executive" to (1) represent Navy producer-interest, (2) supervise the four material bureaus and their industrial and technical shore activities, (3) provide total project management of weapon systems.

The Chief of Naval Material is guided by policies, programs, systems, and procedures established by higher levels. The Assistant Secretary of Defense for Installations and Logistics [ASD (I&L)] is the key OSD civilian specialist in such matters. The Assistant Secretary of the Navy for Installations and Logistics [ASN (I&L)] has a limited staff which is organized as a counterpart of and in direct functional relationship to the ASD (I&L). The ASN (I&L) promulgates to the CNM, through the Secretary of Navy and the CNO, guidelines sanctioned by the ASD (I&L). Similar arrangements exist within the USAF and the Army. Thus, basic policies of all three services emanate from a single source, but the procedural details are adjusted to fit the needs of each service.

## 2.8 THE CONCEPTS OF INTEGRATED LOGISTICS SUPPORT

The concepts of Integrated Logistics Support (ILS) contained in official directives are usually expressed in abstract language so that the policies may be applied by all the Armed Services, each adjusting details to fit its needs, without the restraints that might result from too-specific language. This section of the handbook translates the concepts of ILS into familiar terms, and provides examples that have specific applications for the Ground Support Equipment Logistician.

As an example of the necessity for intensive management procedures of ILS applied to GSE, consider the following case. A major item of GSE for the airborne early warning system — for which model E-2A aircraft is the vehicle — is designated Semi-Automatic Checkout Equipment (SACE). SACE is a self-contained, computer-operated test bench that exercises and diagnoses faults in "drawers" removed from the airborne system. These drawers contain hundreds of printed circuit boards known as cards, each of which contain dozens of electronic circuit elements. Each SACE costs approximately \$1 million, and a SACE is needed aboard each ship and at each shore site from which the airborne system is operated. The complexity of SACE equals or exceeds that of the equipment it is used to test and operation and maintenance of SACE requires the skills of highly trained personnel. The design of SACE was accomplished in parallel with that of the airborne equipment so that SACE could be used as a diagnostic test tool during the latter stages of equipment development and test. Obviously, development, production, distribution, and support of SACE was of major importance. The GSE budget for SACE exceeded that of entire weapons systems of an earlier era. Daily application of a high order of management skill was required to achieve the desired goals.

The vital dependence of airborne systems on properly designed and functional GSE at the support sites, and the high cost of providing multiple units of complex items plus large numbers of less complex, but specialized, items such as bomb hoists, air-turbine starters, hydraulic benches, etc., has made GSE an area of major importance in the framework of NAVAIR Integrated Logistics Support.

## 2.9 ILS DIRECTIVES

The current series of directives setting forth the concepts of Integrated Logistics Support are the following:

Department of Defense Directive 4100.35	<i>Development of Integrated Logistic Support for Systems and Equipment</i>
Department of Defense Directive 4100.35-G	<i>Integrated Logistic Support Planning Guide</i>
SECNAV Instruction 4000.29	<i>Development of Integrated Logistic Support for Systems and Equipment</i>
NAVMAT Instruction 4000.20	<i>Integrated Logistic Support Planning Procedures</i>
NAVAIR Instruction 4000.2	<i>Integrated Logistic Support Planning Procedures</i>

These publications, dated from 1964 through 1966, reflect the evolution in logistic support concepts that paralleled DoD organizational changes.

DoD Directive 4100.35 clearly states the concepts as follows: "1. Plans for employment of a new system must be in balance with the plans for its support. 2. The logistic implications of that system must be considered at the earliest possible time in its life cycle and be integrated as one of the principal elements of trade-off, along with the implications of Research, Development and Test."

The Naval air logistic support directive published immediately prior to DoD Directive 4100.35 was specification WR-30, *Integrated Maintenance Management for Aeronautical Weapon Systems and Related Equipment* (since released as AR-30). WR-30 was officially published in May 1963. It had been developed during the preceding six-years when procedures of intensive management were being experimentally applied to new aircraft-development projects.

WR-30, and its addendums prepared for specific projects, are currently in effect on major development contracts. The procedures in WR-30, which are in accordance with the principles stated in the directives listed above, were developed and tested through experience, and are broadly applicable to all the services. Procedures are treated more fully in Chapter Four. This section treats the principles and concepts that are implemented by the procedures.

## 2.10 THE ILS INTERFACES

Integrated Logistic Support affects many other areas of activity which are discussed in this Section. DoD Directive 4100.35 describes ILS as: "...a composite of the elements necessary to assure the effective and economical support of a system or equipment at all levels of maintenance for its programmed life cycle. . ."

Within NAVAIR, the Integrated Logistics Support task may be described as life cycle support planning and management for Navy air systems and equipment. The basic objective is systematic planning, development, acquisition, and operation of Naval aircraft and related equipment in ways that will produce maximum readiness at optimum cost.

To properly support an aircraft weapons system, Ground Support Equipment must be considered at all levels of maintenance. Other elements associated with Integrated Logistic Support concepts are spares, repair parts, and supplies; facilities; contractor support; design and configuration management; transportation; technical data; and personnel.

The life cycle of a major system typically spans five to seven years before fleet introduction and twelve to twenty years or more of operational service. For programming purposes, a life cycle is divided into five phases; Concept Formulation, Concept Definition, Development, Production, and Operational.

Every NAVAIR-procured weapons system is designed to meet a set of operational requirements established by the Chief of Naval Operations, and published as a Specific Operational Requirement (SOR). The operational requirements in the SOR provide the background rationale for the policy decisions that the Program Manager frequently must make during the processes of system life-cycle management. It also provides design objectives for the system engineers.

The interface concept is particularly apt because of the interlocking effects of every requirement and element. For example, one of the performance items specified in an SOR for an aircraft is "on-station" time. This time keys to the number of aircraft in the ship's complement and to the "deck-cycle", or turn-around time, and hence to time available for servicing. Servicing time becomes a prime factor in the design of airborne and ground support equipment. A trade-off must be made in airborne weight versus turn-around time. For instance, the use of BITE (Built-In Test Equipment) as a means of shortening turn-around time by performing diagnostic tests while the aircraft is airborne, may be rejected to save weight in order to achieve the desired "on-station" time. The diagnostic function must then be designed into the GSE, so that the allowable turn-around time is not exceeded. These trade-offs are made in the conceptual phases. However, increases in weight during the development phase may force subsequent trade-offs, placing further burdens on the GSE and possibly jeopardizing the budget and delivery schedule.

Generally, GSE development is one step behind development of the airborne system, but is required to support it as soon as the airborne system begins service test. One of the aims of ILS concepts is to shorten that critical step. The life-cycle phases described in the DoD Instruction 4100.35G are not usually clearly separated.

Production began on the F-4 aircraft program before the Development Phase ended. This does not mean that unnecessary risks were accepted in producing articles that were not fully developed. It means that the lead time, usually two years, that was necessary to obtain large forgings for such items as the landing gear and wing spars required certain production commitments while items with shorter lead times were still being brought to the final stages of development. Development of the major structural forgings was given priority to allow for their long production lead time.

Successful designs such as the F-4 may continue in production, with many successive modifications, for a decade or longer. Thus, the Operational Phase is nearly always overlapped by the Production Phase.



GSE life-cycle phases parallel those of the airborne system, but on a much more rigid schedule. Although GSE design and development nearly always lags behind that of the items it supports, delivery must be simultaneous with, or in advance of, the first airborne systems if support is to be provided when needed. This puts a high premium on the ability of the GSE logistician to accomplish thorough and effective planning, and to aggressively present his views and problems as a member of an Integrated Logistic Support Management Team.

### CHAPTER THREE

## ORGANIZATION FOR GROUND SUPPORT EQUIPMENT LOGISTIC SUPPORT

### 3.1 INTRODUCTION

The management of Ground Support Equipment in the Naval Air Systems Command is the responsibility of the Director of the Ground Support Equipment Division (AIR-534). In July 1967, COMNAVAIR established AIR-534 as Program Manager for Ground Support Equipment.\* The purpose of this action was to provide for a centrally managed, well-coordinated design, development, test, and evaluation program. The functions delineated were consistent with the program management concept of the Naval Air Systems Command. That is, AIR-534 as GSE Program Manager depends upon its functional branches for design, development, and acquisition management of GSE and upon the Logistics/Fleet Support Group to establish the ILS requirements for GSE and for GSE maintenance and in-service engineering after introduction into the fleet.

The various functional Divisions within the Logistics/Fleet Support Group provide support functions throughout a system/equipment life cycle.

Outside the Naval Air Systems Command Headquarters (NAVAIRSYSCOMHQ), other NAVAIR and Naval activities cooperate to provide support for GSE. These activities assist in developing and implementing logistic support concepts and procedures.

This chapter outlines the organization of the Naval Air Systems Command as it relates to the logistics support of Ground Support Equipment, summarizes the functional responsibilities of NAVAIR and its field activities, and shows the functional interface between the Logistics/Fleet Support Group and the Materials Acquisition Group as it relates to GSE.

### 3.2 LOGISTICS/FLEET SUPPORT GROUP ORGANIZATION

#### 3.2.1 APM(L) Concept

The Logistics/Fleet Support Group (AIR-04) is responsible for providing support management for NAVAIR weapons/weapon systems and equipment. This responsibility consists, basically, of employing the logistic engineering disciplines described in Chapter Four for the development and use of weapons, weapon systems, and equipment. AIR-04 discharges this responsibility through assigned Assistant Program Managers for Logistics, APM(L). The APM(L)s are responsible for assuring that development of the logistics

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\*See NAVAIRINST 5400.18.

program developed for their assigned programs is consistent with the logistics policy and doctrine established by the Assistant Commander for Logistics/Fleet Support. The APM(L)s assure that the Integrated Logistics Support Program for all weapons systems and equipment is structured and executed in accordance with established policies and procedures of COMNAVAIR, CNM, CMC, and CNO. The APM(L)s are also directly responsible to the designated project acquisition managers of the projects to which they may be assigned. For certain designated out-of-production weapons systems (excluding GSE), the APM(L) functions as project manager. The executive direction and authority for assignment of program responsibility within the functional division of the Logistics/Fleet Support Group as executed by the APM(L) include, but are not limited to, the following:

- Coordinating with the functional divisions of AIR-04 in the development of an optimal maintenance program and its expression in a specific Plan to Maintain for each weapon system designated.
- Developing, and approving, consistent with the Plan to Maintain, an Integrated Logistic Support Plan for each weapon system or equipment assigned.
- Determining and recommending alternative logistic support approaches and identifying known scarcities and risks in the logistics area.
- Directing, as the Chairman of ILSMT, the implementation and execution of the ILSP for each weapon system or equipment assigned.
- Coordinating the effort of all supporting personnel within AIR-04 and assigned personnel within activities outside AIR-04 on assigned logistics management matters concerning assigned aeronautical and equipment projects.
- Developing logistic support budget requirements for assigned systems and equipments consistent with Integrated Logistic Support Plans.
- Developing and reviewing Integrated Logistic Support Plans and supportability requirements for Tentative Specific Operational Requirements (TSORs), Specific Operational Requirements (SROs), Proposed Technical Approaches (PTAs), Technical Development Plans (TDPs), Project Master Plans (PMPs), Acquisition Master Plans (AMPs), Request for Quotations (RFQs), Request for Proposals (RFPs), and Program Change Requests (PCRs), and coordinating the preparation of applicable logistics sections of these documents.
- Reviewing and recommending changes to existing or proposed logistics policy instructions.
- Monitoring status of assigned program funding and receiving total funding status information. Recommending to AIR-04 Divisions proposed reallocation or reprogramming actions. Providing comment, concurrence, impact statements, and recommendations for higher authority actions relative to reallocation or reprogramming proposals.

### 3.2.2 Mission Statements

The basic organizational structure of the Logistics/Fleet Support Group is shown in Figure 3-1. The Group is composed of ten divisions, two of which are oriented toward providing Group-wide administrative functions (i.e., Plans, Appraisals and Procedures, and Financial Management); seven of the divisions are oriented toward providing functional logistics element support (i.e., Maintenance Engineering, Material Management, Weapons Training, Maintenance Management, Technical Documentation, Shore Installation, and Ground Support Equipment Logistics); and the Logistics Management Division is oriented toward providing exceptional logistics management for designated weapons and weapons



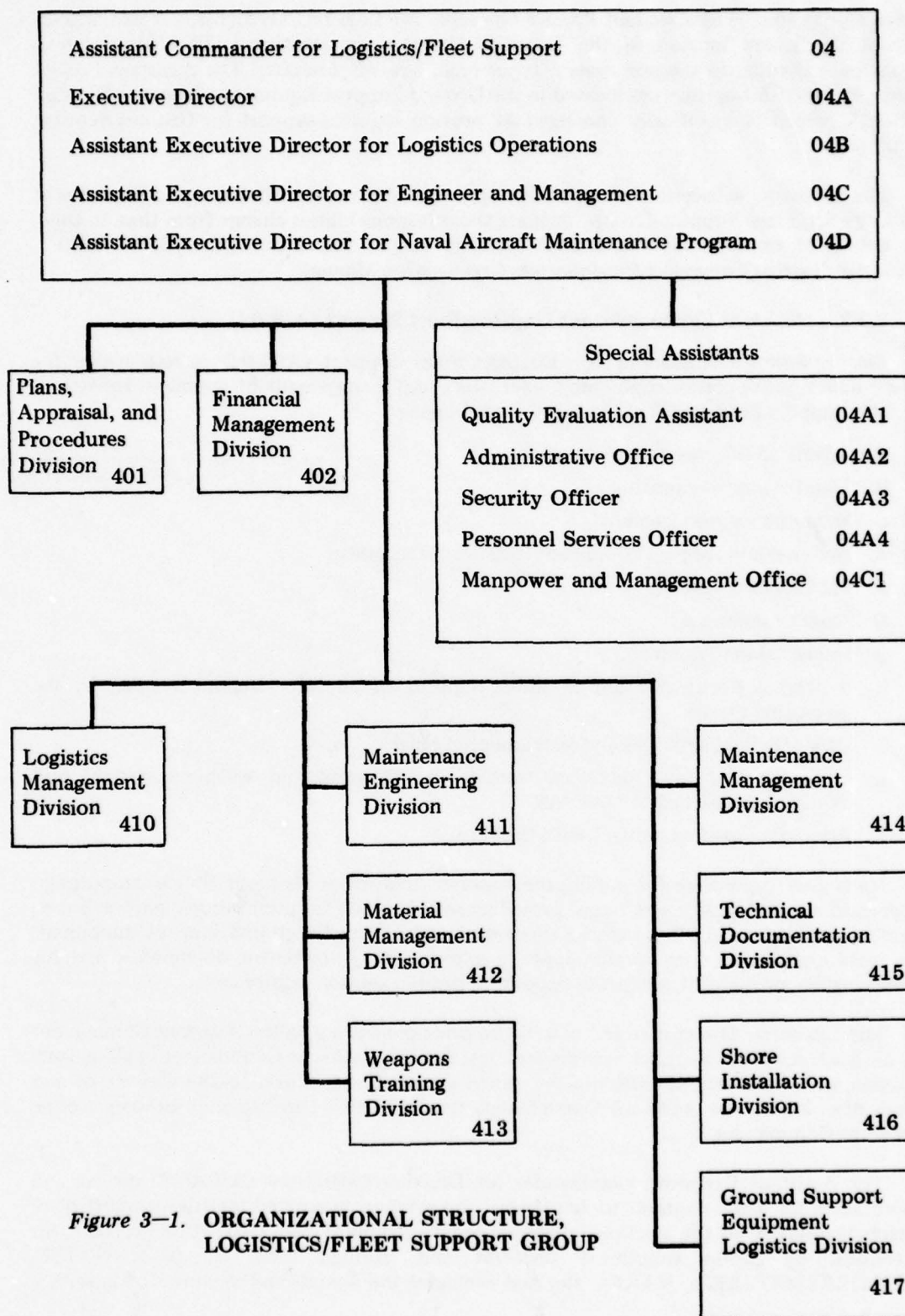


Figure 3-1. ORGANIZATIONAL STRUCTURE, LOGISTICS/FLEET SUPPORT GROUP

systems programs. The Assistant Project Managers for Logistics, APM(L)s, for end-articles (except GSE), are located in the Logistics Management Division (AIR-410), which is organized according to weapon system types (e.g., VA/VF Aircraft). The Assistant Project Managers for GSE Logistics are located in the Ground Support Equipment Logistics Division AIR-417, which is specifically chartered to provide logistics support for Ground Support Equipment.

The following subsections describe briefly the missions of the Divisions and Branches of the Logistics/Fleet Support Group. Because these responsibilities change from time to time, the details of any Division's or Branch's charter can be found in NAVAIRINST 5400.1, *Naval Air Systems Command Headquarters Organization Manual*.

#### 3.2.2.1 Assistant Commander for Logistics/Fleet Support (AIR-04)

The Assistant Commander for Logistics/Fleet Support (AIR-04) is responsible for policy direction, operational planning, execution, and management of complete Integrated Logistic Support Programs. This includes the following:

- a. Advanced support system concepts
- b. Maintenance engineering
- c. Maintenance management
- d. Material and support equipment logistics management
- e. Facilities engineering
- f. Program appraisal
- g. Industrial management
- h. Technical documentation in direct support of aircraft weapons systems in the operating forces.
- i. NAVAIR field activities and instrumented ranges
- j. All aspects of fleet technical training for weapons and weapons systems and equipment assigned to NAVAIR
- k. Primary command contact with the fleet

He is also responsible for joining the Material Acquisition Group in the design/redesign of ground support equipment items; providing requirements for publications, parts support, training programs, and other logistics support considerations for ground support equipment; for incorporation of such requirements in appropriate procurement documents; and for exercising responsibility for logistics support of ground support equipment.

The Executive Director (04A) acts as the principal advisor to the Assistant Commander on all Logistics/Fleet Support matters and acts for the Assistant Commander in all matters wherein such authority is delegated by the Assistant Commander. In the absence of and when directed by the Assistant Commander, the Executive Director shall become Acting Assistant Commander.

The Assistant Executive Commander for Logistics Operations (AIR-04B) directs and coordinates all work required to implement the aviation integrated logistics support plan; directs translation of the aviation integrated logistics support plan into action programs for execution by group functional divisions and through them by ASO, NATSF, NAVAIRSYSCOMREPs, NARFs, etc; and evaluates the operational readiness of in-service



aircraft to determine correct action required to improve overall aircraft support. He acts as focal point for all AIR-04 operations concerning integrated logistics support systems management. He also exercises continuing liaison with units of the operating forces, exchanging information on fleet operating processes and aviation technical/material support problems; recommends corrective actions within NAVAIR to ensure that effective aviation logistics support of these fleet units is maintained, improved, and provided by NAVAIR; serves as a focal point within NAVAIR for fleet liaison requirements.

The Assistant Executive Director for Engineering and Management (AIR-04C) is responsible for establishing policies and objectives governing the systematic and orderly development of ILS for systems and major items of equipment. He is also assigned responsibility for carrying out the program and services as a continuing member on the NAVAIR Executive Committee of the Civilian Career Management Program. He is the senior civilian in AIR-04.

The Assistant Executive Director for the Naval Aircraft Maintenance Program (AIR-04D) is responsible for providing the policy guidance procedures and direction necessary to manage the Naval Aircraft Maintenance Program (NAMP) and all maintenance for NAVAIR. He is the central point for coordination and interpretation of maintenance management policy and procedures from other NAVAIR Groups and Divisions, Naval Commands, contractors, and other services.

#### **3.2.2.2 Plans, Appraisal, and Procedures Division (AIR-401)**

The Plans, Appraisal, and Procedures Division (AIR-401) has the responsibility for developing and integrating current, mid-range (5 to 10 years), and long-range logistics program and mobilization planning information for the Logistics/Fleet Support Group; for analysis, review, and appraisal of logistic support effectiveness as related to planning objectives; for performing research in, as well as design, development, and analysis of, advanced logistic support systems; for integrating logistics policy and procedures into a logistics doctrine for the command; and for operating a Management Information Center.

#### **3.2.2.3 Financial Management Division (AIR-402)**

The Financial Management Division (AIR-402) has the responsibility for matters pertaining to the planning, development, formulation, presentation, and substantiation of all budgeting and funding requirements for the NAVAIR 04 areas of responsibility and apportionments thereof. This includes the NAVAIR Command-wide O&MN (Operations and Maintenance, Navy), all NAVAIR 04 investment and replenishment programs (OPN, NSF, and PAMN), and the Naval Air Rework budgets. This Division is also responsible for developing and disseminating plans, policies, and procedures required to provide essential manpower in support of NAVAIR and assigned field activities. AIR-402 serves as the NAVAIR 04 focal point for all financial and resources program requirements.

#### **3.2.2.4 Logistics Management Division (AIR-410)**

The Logistics Management Division (AIR-410) is responsible for the integrated logistics support management of aircraft, weapons, weapons systems, and equipment under the cognizance of NAVAIR which are not specifically assigned to other divisions.

The Director of AIR-410 assumes total project executive authority for fleet logistic requirements upon receipt of a Specific Operational Requirement (SOR). An APM(L) is

assigned project cognizance upon receipt of an SOR. AIR-410 has the following Special Assistants:

- 410A — Assistant Director
- 410B — Assistant for International and Interservice Logistics Support
- 410C — Assistant for Procedures Standardization
- 410D — ILS Contractural Management

#### **3.2.2.5 Maintenance Engineering Division (AIR-411)**

The Maintenance Engineering Division (AIR-411) is responsible for providing maintenance (service) engineering and technological capability for weapons systems, subsystems, and components (excluding GSE) assigned to AIR-04. Additionally, the Maintenance Engineering Division provides integrated logistics support management for all systems and equipments not specifically designated for AIR-410 or AIR-417 management.

AIR-411 has the following special assistants:

- 411A — Assistant Director
- 411B — Assistant Engineering
- 411C — AIR-04 Technical Library
- 411D — NOAP Coordinator

#### **3.2.2.6 Material Management Division (AIR-412)**

The Material Management Division (AIR-412) is responsible for centralized asset management of NAVAIR-cognizant materials. The Division functions as a central point for coordination of supply, policy, program, and procedures with DoD, other Naval Systems Commands, offices, field activities, and other government agencies. It also serves as the central organization to resolve aircraft weapons system material support problems.

#### **3.2.2.7 Weapons Training Division (AIR-413)**

The Weapons Training Division (AIR-413) is responsible for managing a program for the development of personnel requirements and technical training for Navy personnel assigned to the maintenance and operation of weapons and systems provided by NAVAIR.

#### **3.2.2.8 Maintenance Management Division (AIR-414)**

The Maintenance Management Division (AIR-414) is responsible for implementing and coordinating Navy-wide aviation maintenance management programs at the organizational, intermediate, and depot levels of maintenance in direct support of aviation weapons systems.

#### **3.2.2.9 Logistics Technical Documentation Division (AIR-415)**

The Logistics Technical Documentation Division (AIR-415) is responsible for defining, developing, and approving policies, directives, and specifications for technical documentation and configuration status accounting as required for weapons systems and equipment logistics support planning and use.

#### **3.2.2.10 Shore Installation Division (AIR-416)**

The Shore Installation Division (AIR-416) is responsible for program coordination of Military Construction, Real Estate, Special Facility Projects, Ground Electronics, assigned Airfield Landing Aids, and Industrial Plant Equipment. The Division also serves as the NAVAIR focal point for all matters pertaining to construction of nuclear weapons support facilities and all liaison with NAVFAC for assigned programs.

#### **3.2.2.11 Ground Support Equipment Logistics Division (AIR-417)**

The Ground Support Equipment Logistics Division (AIR-417) is the AMP(L) for GSE within NAVAIR. Because of its importance to Ground Support Equipment, the entire current charter for the Ground Support Equipment Logistics Division (AIR-417) is reproduced below. However, this should be used only as a general guide. Because of possible future changes, reference should be made to NAVAIRINST 5400.1. In general, AIR-417 performs the functions of the APM(L) — supplying planning, maintenance engineering, budgeting, and funding for GSE.

The Ground Support Equipment Logistics Division is responsible for the integrated logistics support, maintenance (in-service) engineering, and material management support of GSE. Responsibilities include the following:

- a. Acting as the primary Command contact within NAVAIR for all logistics problems relating to GSE encountered by the Fleet and field activities.
- b. Reviewing and evaluating the funding requirements for total logistic support of weapon systems GSE to ensure an equitable support-equipment program.
- c. Developing life-cycle plans, programming, and coordinating overall integrated management of logistic support of common GSE.
- d. Providing peculiar GSE integrated logistics support requirements for incorporation into the Integrated Logistics Support plans developed and issued by the Logistics Management Division (AIR-410) and Maintenance Engineering Division (AIR-411) for aircraft, systems, and aeronautical equipment
- e. Analyzing maintenance capabilities of the operating forces and supporting maintenance activities for purpose of determining application of GSE requirements.
- f. Determining qualitative and quantitative requirements for common GSE and items and related material support; assisting the appropriate divisions and offices by providing adequate and proper information to support, substantiate, and justify budget and funding requirements for GSE. Approve for release funds allocated for investment and replenishment spare parts for GSE.
- g. Advising the Assistant Commanders for Material Acquisition and Research and Technology of maintainability, reliability, and supportability design requirements for GSE.
- h. Developing and implementing Integrated Logistics Support Plans for common GSE.
- i. Developing and implementing a Plan-for-Maintenance for assigned GSE; conducting maintenance engineering analyses and trade-off studies to satisfy alternative support concepts; advising the Assistant Commander for Material Acquisition as to the suitability of maintenance characteristics for GSE equipments under development.



- j. Performing maintenance (in-service) engineering for GSE; providing technical direction and support to the Fleet, field activities, inventory control points, and contractors concerning environmental requirements for GSE.
- k. Approving operational and maintenance training requirements for common GSE. Ensuring that common GSE training requirements are incorporated in appropriate procurement documents.
- l. Approving technical manual and documentation requirements for common GSE and ensuring that GSE technical manual and documentation requirements are included in the appropriate procurement documents. Ensuring the verification of common GSE technical manuals.
- m. Determining budgeting and technical requirements and providing direction for the installation of GSE items at field activities. Administering funds appropriated for this purpose.
- n. Establishing the need for calibration and quality-assurance requirements for GSE.
- o. Performing material management of NAVAIR controlled GSE end items. Assuring effective distribution and redistribution of controlled assets to meet fleet requirements.
- p. Determining total GSE spare parts support requirements; ensuring that appropriate procurement action is taken to satisfy these requirements.
- q. Managing the AMMRL (Aircraft Maintenance Material Readiness Lists) Program. Directing the preparation, distribution, and revision of GSE outfitting and allowance lists.
- r. Managing and coordinating the Aviation Mobile Maintenance Facilities Program (Vans), and Shop Rearrangement and Equipment Installation Program.
- s. Conducting maintenance (in-service) engineering studies to establish source of GSE failures, optimum inspection intervals, and necessity for redesign, modernization, and product improvement, and initiating or recommending corrective action to AIR-534, as appropriate.
- t. Analyzing Unsatisfactory Reports, Maintenance and Material Management data, and other maintenance data regarding GSE to determine necessary remedial action, consistent with safety, operational and environmental considerations, and initiating or recommending corrective actions as appropriate.
- u. Performing technical and logistics review of engineering changes to GSE and formulating the Logistics/Fleet Support Group position on Change Control Board actions for GSE.
- v. Preparing and approving for release technical directives to the Fleet and Shore activities (changes and bulletins) to modify GSE.
- w. Establishing and coordinating significant in-house modification programs for GSE. Participating with AIR-534 in the establishment of commercial modification programs for GSE, as appropriate.
- x. Developing technical and funding requirements for rehabilitation and rework of GSE. Administering funds appropriated for this purpose.

Figure 3-2 shows the organizational structure for AIR-417.

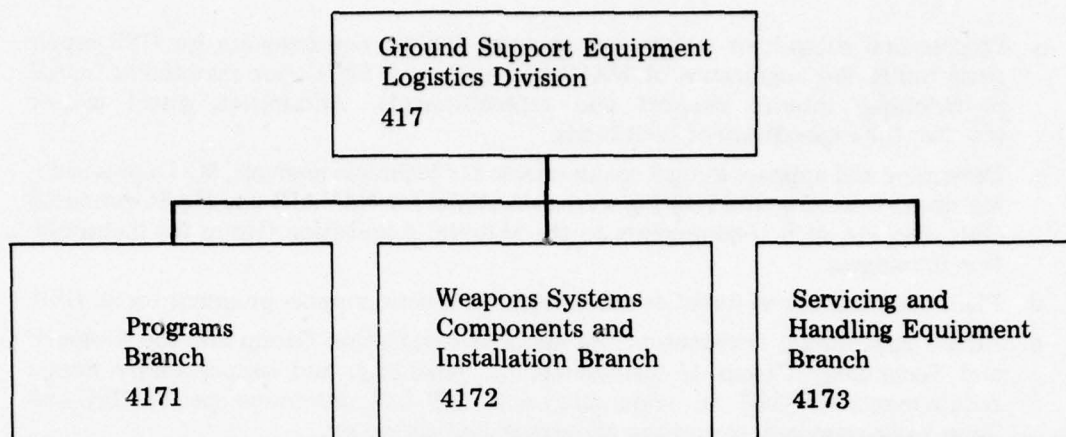


Figure 3-2. ORGANIZATIONAL STRUCTURE OF AIR-417

**Programs Branch (AIR-4171)** is responsible for developing policies and procedures, budgeting and funding for logistic support and replenishment requirements, and performing inventory management functions for GSE, including allowances and AMMRL Program functions. Performs functions a, b, c, e, f, m, o, p, q, w, and x in the section above, as applicable to Branch responsibilities.

**Weapon-Systems, Components and Installation Branch (AIR-4172)** is responsible for adjustment of projects and funds to ensure a balanced support equipment program and for integrated logistic support management and maintenance engineering of GSE for avionics, power plants, armament, air-launched weapons, and airborne equipment. Also is responsible for determining installation requirements for GSE items at shore activities and administering and managing the Aviation Mobile Maintenance Facilities Program (Vans), and Shop Rearrangement and Equipment Installation Program. Performs functions a, b, c, d, e, f, g, h, i, j, k, l, n, r, s, t, u, v, w, and x of the Section above, as applicable to Branch responsibilities.

**Servicing and Handling Equipment Branch (AIR-4173)** is responsible for integrated logistics support management and maintenance engineering of servicing and handling GSE. Servicing and handling GSE includes devices and equipment for movement, positioning, lifting, crash and rescue, environmental conditioning and control, accessibility, fluid servicing, analysis, detection, prevention, measurement, inspection, protection, removal, installation, and cleaning functions. Performs functions a, b, c, d, e, f, g, h, i, j, k, l, n, r, s, t, u, v, and x of the Section above, as applicable to Branch responsibilities.

The organizational description above states the responsibilities of the Ground Support Equipment Logistics Division and is amplified by the following list, which is a description of what individuals within AIR-417 must accomplish.

- a. Act as primary NAVAIR contact point for all GSE logistic and support problems encountered by the fleet and field activities.

- b. Prepare and submit, or review and approve, budget requirements for GSE repair parts under the cognizance of NAVAIR, ASO, and SPCC (for investment, initial provisioning, interim support and replenishment). Administer, direct and/or monitor the expenditure of such funds.
- c. Determine and approve budget requirements for technical manuals, MRCs provisioning documentation, and training services/material for NAVAIR and NAEC-procured GSE. Provide such requirements to the Material Acquisition Group for incorporation in budgets.
- d. Plan, coordinate, and direct overall integrated logistic support programs for all GSE.
- e. Advise appropriate Divisions in the Material Acquisition Group and the Research and Technology Group of maintainability, reliability, and supportability design requirements for GSE. In conjunction with AIR-534, determine specific GSE end items to be procured, quantities, allowance, and allocation.
- f. Develop and implement Integrated Logistic Support Plans for common GSE. For peculiar GSE, provide integrated logistic support requirements to appropriate Divisions in AIR-04 and AIR-05 for incorporation into contract provisions and Integrated Logistic Support Plans developed under the aircraft, weapon system, or aeronautical equipment program.
- g. Develop and implement a Plan For Maintenance for assigned common GSE, conducting maintenance engineering analyses as required, and advising the Assistant Commander for Material Acquisition regarding the suitability of maintenance characteristics for the GSE items under development.
- h. Take responsibility for maintenance engineering, and for providing technical direction and guidance to the fleet, field activities, inventory control points, and contractors regarding maintenance, repair, overhaul, provisioning, and related factors for support of specific GSE end items.
- i. Determine, arrange for, and approve operational and maintenance training requirements for specific items of GSE. Ensure that GSE training requirements are incorporated in appropriate procurement documents.
- j. Approve technical manual and documentation requirements for GSE and ensure that such requirements are included in appropriate procurement documents.
- k. Coordinate with the Technical Documentation Division (AIR-415), the Ground Support Equipment Division (AIR-534), and NATSF to ensure that proper and timely action is taken to have GSE technical manuals verified.
- l. Coordinate and direct budgeting, funding, and implementing action to have GSE items installed at field activities (including NARFs) and into Mobile Maintenance Vans as required.
- m. As part of the Maintenance Plan and Integrated Logistic Support Plan for specific GSE items, determine the need for calibration requirements in conjunction with cognizant design engineers in the Material Acquisition Group. Direct the preparation, review, and approval of such calibration requirements.
- n. Coordinate and manage overall Aviation Mobile Maintenance Van requirements for the Navy and Marine Corps. Exercise inventory management, distribution, and issue control of Vans. Direct and administer the in-house outfitting of Aviation Mobile Maintenance Vans for the Navy and Marine Corps (including the budgeting and funding for labor, raw material, local purchase items, and NSF material costs).



- . Coordinate and direct budgeting, funding, and management of Shop Rearrangement and Equipment Installation Programs in the field.
- . Establish policy and direct the 3M Program insofar as application to GSE is concerned. Review and analyze 3M reports and unsatisfactory reports, taking corrective action required to rectify parts shortages, maintenance and inspection procedures, and maintenance management considerations to improve utilization and fleet readiness of GSE.
- . Perform logistic and support review of proposed engineering changes to GSE and formulate the AIR-04 position with regard to approval/disapproval of such changes. Act as the focal point in AIR-04 for all proposed changes in GSE, obtaining and providing cost elements and the recommended course of action to be taken for acceptable changes. Provide the GSE Program Manager with consolidated AIR-04 cost information and recommendations.
- . Act as focal point in AIR-04 for the review, coordination, and approval of GSE technical directives (SECs and SEBs). Obtain concurrence or nonconcurrence from cognizant Material Acquisition Group design engineer and take corrective action if required. Approve and release acceptable Interim SECs and SEBs and furnish NAVAIR approval to NATSF for release of acceptable Formal SECs.
- . Establish and coordinate significant in-house and commercial rework, modification, and repair programs for GSE. Take budgeting and funding action as required, or ensure that such action is taken by AIR-414 or AIR-534 for NARF effort or production contract effort, respectively.
- . Budget and administer funds for maintenance, repair, rehabilitation, and rework of GSE not normally covered in standard rework or repair programs (NARFs, PWCs, etc.).
- . Monitor and ensure that timely provisioning action is taken by cognizant ICPs for specific GSE items. Coordinate interim support requirements and ensure that required material and parts are placed on order in a timely manner. Prescribe provisioning and interim support policies and procedures for GSE and ensure that such policies and procedures are implemented. Resolve conflicts that might arise between organizations and activities with respect to provisioning and interim support policies and procedures as they apply to GSE.
- . Act as AIR-04 focal point and coordinating and directing authority on all logistic and support matters involving automatic test equipment (ATE).
- . Exercise inventory management, distribution, and issue control over GSE end items procured or managed by NAVAIR. Reassign equipment in the fleet and the field to meet requirements.
- . Manage the AMMRL Program. Establish GSE end item allowance list policy and direct the preparation, distribution, and revision of GSE end item outfitting and allowance lists.

### 3.2.3 Responsibilities

Table 3-1 provides a convenient means for identifying the cognizant code in AIR-04 for various GSE ILS functions.

**Table 3-1. AIR-04 GSE FUNCTIONAL RESPONSIBILITIES**

Function	Code Responsibility	Function	Code Responsibility
Aircraft Engine Inventory Reporting Program	4124	3M Procedures	4171
AIRTASK/CONTRACTS for Service	4171	Maintenance Management Policy	4171
Allocation of GSE	4171	Maintenance Planning	4172, 3
Allowance Changes	4171	Material Donation Programs	4125
ADMRL Review Conference	4171	MRC Program	4172, 3
ADMRL/IMRL	4171	Military Construction	416
Budget Factor for Logistic Support	417/410	MIPR Preparation	4143
Calibration of GSE	04A1, 4124	MILSTRIP (NAVAIR Originated)	4125/4171
Calibration Requirements	4111, 2, 3, 4	NATSF Interface	415
CER	4145	Operational Requirements Determination	4172, 3
Change Kits Manufacture	4146	Packaging and Preservation	4125
Changes to GSE	417/534	PGSE Repair, Modification and Installation; Funding for	417
Commercial Maintenance	4143	Prepositioning Guidance	4125
Component Rework, Repair, Modification/Modernization	4146	Provisioning Plans	4171
COOPLAN (Continuity of Operations Plan)	4125	Provisioning Policy	4171
Design Review/Approval	534/417	Provisioning Program Development	4171
DD 1423	415	Provisioning Schedules	4171
Distribution Requirements (Supply)	4171	Publication Codes	415
Documentation Requirements	415	Quality Assurance	417
DOP Assignment for Component Rework	4146	Refurbishing of GSE	417/414
Fleet Interface on Design/Availability/Suitability of GSE	417/534	Repair of GSE	417/414
FSN Assignment	4125	Repair Parts Provisioning Conference	4171
ICP Item Assignment	4124	Retirement of GSE	4171, 2, 3
ILS Planning and Management	4172, 3	SEC Release Authorization	4172, 3
ILS Policy Procedures	4171	SEL/SER Review	417
Industrial Guidance	4141	SMR Code	4171, 2, 3
Installation Requirements	4172	Specification Policy	4171
Interim Support Requirements	4172, 3	Spares Support Computation	4171, 2, 3
Inventory Data	4171	Stock Distribution Guidance	4171
Inventory Management	4171	Supply Asset Monitoring	4171
Interservice Maintenance Support	414A1	Supply Budgeting	4171
Logistics Doctrine	401/417	Supply Policy	4171
Logistics Support Conference	534/4172, 3	Supply Training	4171/413
Maintenance Activity Analysis	4142	Supply Support for Aircraft Bailment/Loan/Lease	4125
Maintenance Cycle Kits	4172, 3	Support Equipment Maintenance Management	417
3M Compilation and Collation	4121	Technical Manuals	415
3M Data Analysis	4111, 2, 3, 4	Training Plans, Requirements, Personnel, etc.	4135
		Transportation	4125



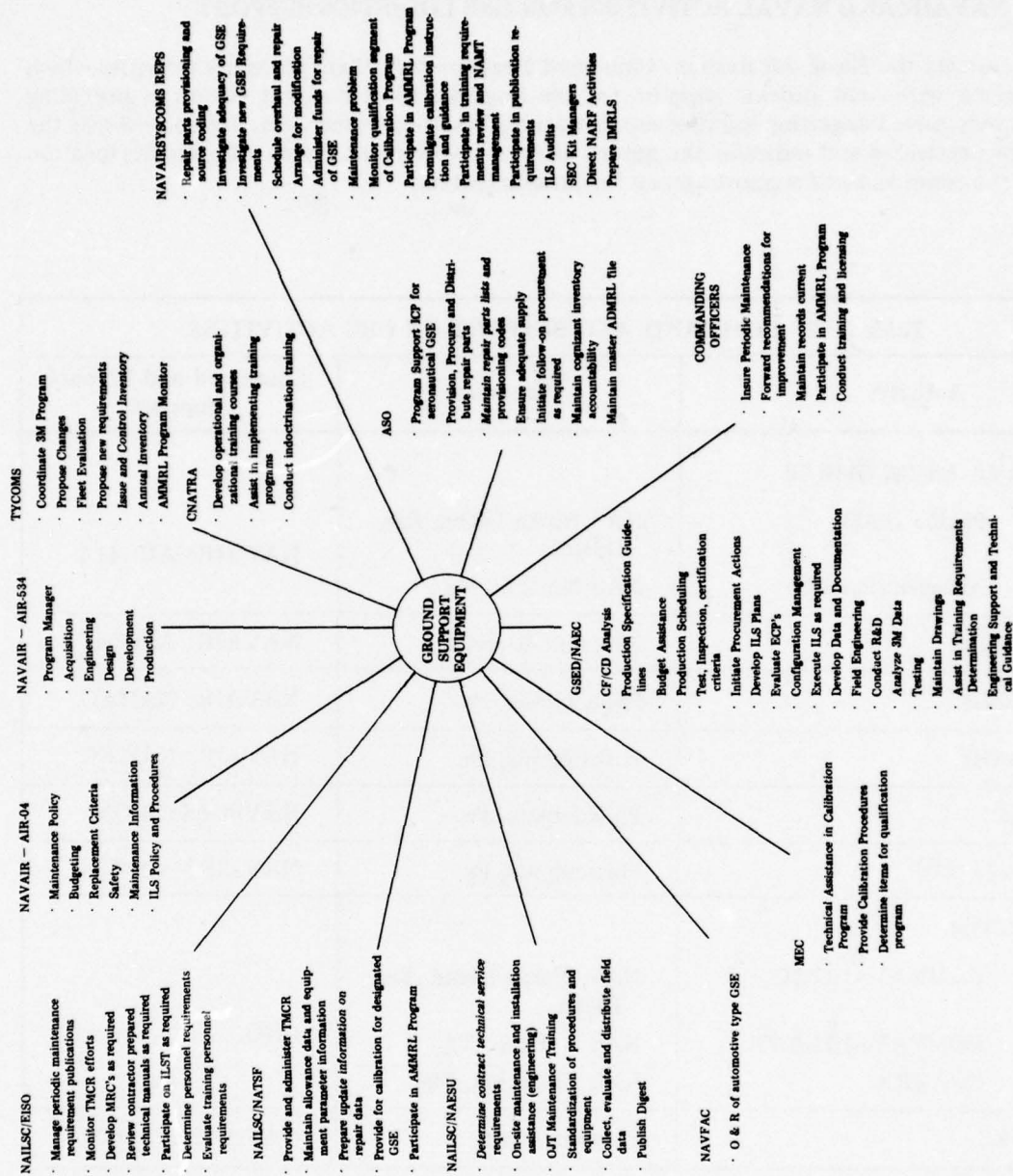


Figure 3-3. NAVAL ACTIVITIES INVOLVED IN LOGISTIC SUPPORT OF GSE

### 3.3 NAVAIR AND NAVAL ACTIVITIES FOR GSE LOGISTICS SUPPORT

Outside the Naval Air Systems Command Headquarters, there are many activities which interface with, and provide support to, the Logistics/Fleet Support Group in providing comprehensive integration logistics support for NAVAIR-provided GSE. Figure 3-3 lists the various activities and indicates the nature of their involvement. Table 3-2 gives the location and the command and support agency for these activities.

Table 3-2. COMMAND AND SUPPORT OF GSE ACTIVITIES		
Activity	Location	Command and Primary Support
NAVAIRSYSCOMREP Pacific (PAC) Atlantic (LANT)	NAS North Island, San Diego NAS Norfolk, Va.	NAVAIR: AIR-414
NAILSC	Patuxent River, Md.	NAVAIR: AIR-04
NAESU	Philadelphia, Pa.	NAVAIR: NAILSC
NATSF	Philadelphia, Pa.	NAVAIR: NAILSC
ASO	Philadelphia, Pa.	NAVSUPSYSCOM
NAEC (SE)	Philadelphia, Pa.	NAVAIR: AIR-534
TYCOM COMNAVAIRPAC COMNAVAIRLANT CNATRA	NAS, North Island, San Diego NAS Norfolk, Va. NAS Pensacola, Fla.	CNO
MEC	Pomona, Calif.	NAVORDSYSCOM

### 3.3.1 Naval Air Engineering Center (NAEC)

The Naval Air Engineering Center (NAEC), Ground Support Equipment Department (SE), Philadelphia, is a field activity to manage ground support equipment. NAEC(SE) is NAVAIR's primary field activity for all GSE (CGSE and PGSE). NAEC(SE) performs AIR-05 and AIR-04 functions and should receive most Fleet complaints, URs, and design/procurement/service engineering problems. Under the guidance of NAVAIR (AIR-534/AIR-417), NAEC(SE) is responsible for conducting and/or managing the development, test, evaluation, procurement, production, fleet introduction, logistic support, and in-service engineering programs for all ground support equipment assigned to the Naval Air Systems Command.

The NAEC(SE) organization, shown in Figure 3-4, takes primary direction from AIR-534. Tasks are assigned to the NAEC(SE) by means of AIRTASKS and Work Unit Assignments.

In support of AIR-04, the NAEC(SE) is responsible for conducting preliminary investigations into detailed requirements for, and/or availability of, documentation for GSE logistics support. NAEC(SE) is responsible for the preparation of preliminary Integrated Logistics Support Requirements, in accordance with NAVAIRINST 4700.6, for each GSE item and is completed DoD budget end article list. Submittal of these plans begins in February and is completed in April of the year preceding the fiscal year for which the list is prepared.

The NAEC(SE) also conducts special projects and studies relative to logistics and support, as requested by AIR-04 through AIR-534. Work is accomplished through the preparation and issue of AIRTASKS and Work Unit assignments.

### 3.3.2 Aviation Supply Office (ASO)

The Aviation Supply Office (ASO), Philadelphia, is the primary inventory control point (ICP) for the Naval Air Systems Command. The basic objective of the ASO is to assure a proper balance between supply and demand, keeping within the budget to provide responsive and efficient support to the Fleet and shore activities of NAVAIR. The ASO is generally responsible for:

- a. Collecting and maintaining the basic data necessary to determine item requirements, procurement and repair requirements, and distribution requirements.
- b. Computing stock level and replenishment requirements. This involves assembling the many NAVAIR requirements for a single item at a given time and comparing them with the material on hand to determine procurement requirements.
- c. Determining and justifying budget requirements for inventory as applicable.
- d. Distribution of assets.
- e. Determination of the effectiveness of support to the customer (fleet or shore activity).

The AMP(L) for GSE (AIR-417) provides the ASO with the basic requirements documents and the funds necessary to maintain an adequate inventory of spares and repair parts.



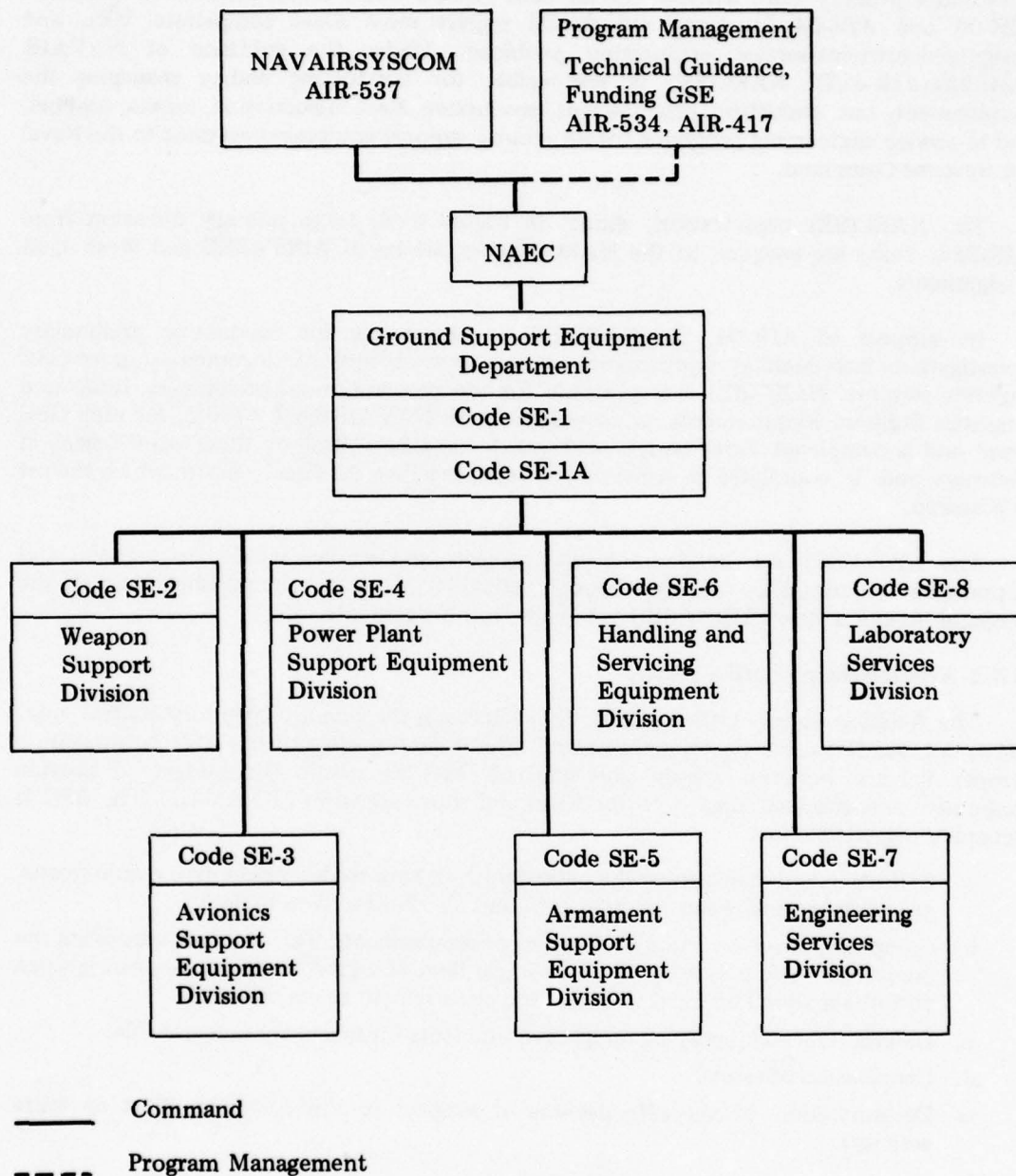


Figure 3-4. GROUND SUPPORT EQUIPMENT DEPARTMENT ORGANIZATION

The Aviation Supply Office is also responsible for conducting provisioning conferences and establishing provisioning policy for end articles/items.

ASO is in the command chain of the Naval Supply Systems Command and provides program support to the Naval Air Systems Command. That is, ASO is responsible for ensuring that appropriate GSE and repair parts are available to support each assigned weapon system, subsystem, or equipment. This is accomplished either by arranging for specific item support for appropriate commodity Inventory Managers Navy, DSA, GSA, other services), or by providing the supply support for parts peculiar and items falling within ASO's commodity assignment as an Inventory Manager.

A single point of contact for GSE has been established within the Weapons System Support (WSS) Division at the ASO. This contact, Code WSS2-2 is responsible for coordinating, within ASO, any actions involving GSE for support of assigned aircraft or equipment.

### **3.3.3 Naval Air Systems Command Representatives (NAVAIRSYSCOMREPs)**

The Naval Air Systems Command Representatives, Pacific and Atlantic, are assigned to represent the Naval Air Systems Command in the exercise of required technical coordination, administrative controls, and liaison functions in matters of Fleet Readiness and Training; and to concurrently represent the fleet and training commands in the same manner. The NAVAIRSYSCOMREP organizations generally consist of a Fleet Support Department, a Quality Assurance Department, and a Contract Support Department.

The functional responsibilities of the NAVAIRSYSCOMREPs relative to GSE are shown on Figure 3-4. The NAVAIRSYSCOMREPs provide fleet inputs to the Logistics/Fleet Support Group regarding the operation, adequacy, suitability, and availability of ground support equipment and investigate requirements for new GSE. They are also responsible for promulgating the maintenance policies ILS plans established by NAVAIR, and for directing the activities of the Naval Air Rework Facilities.

### **3.3.4 Naval Air Integrated Logistic Support Center (NAILSC)**

The Naval Air Integrated Logistics Support Center, located at the Naval Air Test Center, Patuxent River, Maryland, incorporates the functions of the former EISO and WPRD offices. In addition, the NAILSC also directs the activities of two field agencies; the Naval Air Technical Services Facility (NATSF) and the Naval Air Engineering Service Unit (NAESU), which are described in sections 3.3.4.1 and 3.3.4.2, respectively.

NAILSC is responsible for managing the Periodic Maintenance Requirements Publications (MRC) of the Planned Maintenance System for GSE, and for reviewing and verifying contractor-prepared GSE technical manuals to ensure specification compliance and validity of technical content. NAILSC serves on GSE Integrated Logistic Support Teams (ILST) as directed by NAVAIRSYSCOM.

The NAILS Center is responsible for establishing personnel requirements and training information to effect adequate skill and knowledge levels to support newly developed aircraft being introduced into the Fleet. As part of this responsibility, NAILSC must perform the following functions:

- a. Provide NAVAIR with detailed recommended maintenance and operating personnel requirements for equipments and systems under the cognizance of NAVAIR.

- b. Provide NAVAIR with recommended training and education requirements for Naval personnel, assigned, or intended for assignment, to maintenance and operating duties on equipments and systems under the cognizance of NAVAIR.
- c. Provide NAVAIR with recommendations for assignment of Naval personnel, trained or to be trained, on equipments and systems under the cognizance of NAVAIR.
- d. Provide NAVAIR with detailed human-factor recommendations for the operability and maintainability of equipments and weapons systems under the cognizance of NAVAIR.

#### 3.3.4.1 Naval Air Technical Services Facility (NATSF)

The Naval Air Technical Services Facility, Philadelphia, Pennsylvania, is a field activity of NAILSC and responsible for providing technical services, as directed, in the development, preparation, publication, and distribution of aeronautical technical and maintenance management information to designated Naval and service-wide activities.

The NATSF provides for and administers publication and technical manual contract requirements for GSE. NATSF also obtains and provides calibration procedures for designated GSE.

NAILSC serves as the focal point for information concerning NATSF's workload and resources available for future assignments. Originators of NAVAIR documents which commit funds, request services, or result in changes related to these actions, must obtain concurrency by signature from AIR-415B prior to signature and release.

#### 3.3.4.2 Naval Aviation Engineering Service Unit (NAESU)

The Naval Aviation Engineering Service Unit (NAESU), Philadelphia, Pennsylvania, is now a field activity of NAILSC, with responsibility for providing field engineering assistance and instruction to Naval aviation activities in the installation, maintenance, repair, and operation of all types of weapons systems and equipment. With respect to GSE, NAESU is responsible for the following:

- a. Determining and consolidating requirements for contract technical services (CETS).
- b. Furnishing on-site engineering assistance in the installation and maintenance of aviation systems and equipments to activities supporting, maintaining, overhauling, or having cognizance of such systems and equipment.
- c. Furnishing on-the-job training to aviation personnel in the proper maintenance, repair, and operation of GSE, with particular emphasis on new equipments.
- d. Providing technical assistance in implementing standardization of aviation GSE and maintenance procedures.
- e. Collecting, evaluating, and distributing technical information originating or developed from field engineering services rendered.

The NAESU is under the command of and receives primary support from the Commander, NAILSC. The Fleet Maintenance Support Branch (AIR-4141) serves as the central control point for information and necessary action on the workload or funding of programs at NAESU. Originators of NAVAIR correspondence which directs funds or tasks to NAESU must obtain approval from AIR-4141 prior to release from the command.



### 3.3.5 Naval Air Test Center (NATC)

The Naval Air Test Center (NATC), Patuxent River Naval Air Station, performs accelerated testing of aircraft, weapons systems, and GSE to determine operational suitability, maintainability, reliability, safety, and acceptability. Following test and evaluation, NATC may recommend design changes to equipment. NATC issues monthly reports to NAVAIR on test and evaluation work.

Within NATC is the Ground Support Equipment Branch, (Code ST37), whose activities include the following:

- . Planning, organizing, conducting, and reporting on projects involving the service and mission suitability of all types of peculiar or common GSE used with aircraft, weapons, and associated systems.
- . Determining, through operational tests, that all GSE, including avionics, armament handling, propulsion, ground handling and servicing, and special support equipment required to maintain, service, handle, overhaul, test, or operate a Naval aircraft system or equipment, ashore or afloat, is suitable, reliable, and acceptable for service use.
- . Conducting suitability, maintainability, and operational reliability phases of all special support equipment for aircraft undergoing Navy Preliminary Evaluation and Board of Inspection and Survey Trials.
- . Monitoring specified GSE from the development stage to final fleet delivery to correct deficiencies as early as possible.
- . Evaluating the design suitability, performance of intended task, safety, utility, and specification compliance for each item of GSE.
- . Determining whether the amount of general/standard support equipment required is sufficient.
- . Evaluating the practicality and economics of special support equipment developed to decrease the general/standard support equipment volume, variety, and costs. Determining whether any item of GSE can be eliminated by a reasonable change to the aircraft, system, or equipment.
- . Conducting applicable Fleet Introduction programs for fleet personnel.
- . Maintaining liaison with the Naval Air Systems Command, other DoD activities, officers of the Staff of the Commander, Naval Air Test Center, Chief Project Engineers of other Test Divisions, and contractor representatives to achieve high level project support.

### 3.4 AIR-04/05 GSE INTERFACE

The functions of the Logistics/Fleet Support Group relative to GSE and those of the Materials Acquisition Group, specifically the Ground Support Equipment Division (AIR-534), require a close liaison between AIR-04 and AIR-534. The basic responsibility of the Materials Acquisition Group (especially AIR-534) is the development and acquisition of ground support equipment. The Logistics/Fleet Support Group is responsible for maintaining the developed GSE in the Fleet.\* Therefore, AIR-05 must be aware of the logistic and maintenance capabilities and policies of AIR-04 to ensure that equipments are designed to

\*A description of the functions of AIR-534 is contained in ARINC Research Publication 582-02-1-877, *The Red Book*.

be compatible with these policies and procedures. AIR-04 also must be constantly aware of the development efforts to AIR-05 to enable that office to discharge its logistic and maintenance responsibilities efficiently.

The Ground Support Equipment Division (AIR-534) is responsible for the development, engineering, evaluation, test, procurement/production support of all GSE. It assists the Assistant Commander for Research and Technology in developing and justifying plans for research, exploratory, and advanced development programs in the Division's cognizant technical area; initiates and directs such research, exploratory, and advanced development projects as may be assigned for the Division's execution by the Assistant Commander for Research and Technology; and reports the progress of such projects.

AIR-534 functions include investigation, determination of suitability, and technical approval of any peculiar, special, general-purpose, standard, or common GSE used with aircraft, weapons, and associated systems. AIR-534 is also responsible for establishing basic allowances, preparing budgets and justifying GSE requirements on the basis of information from the Logistics/Fleet Support Group concerning quantities required and support and logistic factors. The Division provides parameters, characteristics, details, and any required coordination concerning installation requirements for GSE items aboard ship and at shore activities.

In addition, the Division is responsible for ensuring that research, exploratory, and advanced development matters are coordinated with, or approved by, the Assistant Commander for Research and Technology.

The Division is made up of four branches each of which is assigned a specific commodity area. These Branches are as follows:

- AIR-5341, Weapons System Requirements and Acquisition
- AIR-5342, Avionics Support Equipment
- AIR-5343, Propulsion Support Equipment
- AIR-5344, Handling, Servicing, and Armament Support Equipments

## CHAPTER FOUR

### PROCEDURES

#### 4.1 PLANNING

##### 4.1.1 Basic Plans

Basic objectives and requirements are received from higher authority (within or outside the Navy) or are generated within NAVAIR. The receiving point in NAVAIR for such objectives and requirements is the Director, Plans Division (AIR-101), who initiates the necessary action by issuing Planning Directives. Planning Directives are designed to provide planning guidance, define the intended use of the guidance, establish NAVAIR tasks or studies, assign responsibilities to cognizant Assistant Commanders, and establish milestones for task completion. Planning directives are issued on aircraft, weapons, functional programs, and all activities that contribute to the NAVAIR effort.

The functional responsibility for logistics planning in AIR-04 rests with the Plans Branch (AIR-4011). Logistics planning includes the development of concepts, requirements, and objectives for logistics support and provides a framework for the mutual translation of concepts, forecasts, and other guidance into research, development, and support plans and objectives. Logistic planning should be included in all NAVAIR Current, Mid-Range and Long-Range Plans (present to 5 years, 6 to 10 years, and 11 to 20 years, respectively).

Long-Range Plans for logistics support are concerned primarily with the AIR-04 input to Annex D of the Naval Aviation Plan, prepared by AIR-1014. These inputs include advanced support system concepts required to meet unique logistic requirements, such as special shipboard/shore-based facilities, training, personnel, etc. These requirements may be generated by advanced air systems plans, long-range forecasts of logistics and facility requirements, plans such as peculiar support equipment requirements and installation plans, command-wide facilities plans, and personnel and training requirements for new and existing systems that must be supported in the NAVAIR Long-Range Plans.

Mid-Range Plans are developed from reviews of special study reports, Proposed Technical Approaches (PTAs), Statement of Requirements (SORs), Advanced Development Objectives (ADOs), and Technical Development Plans (TDPs). The Mid-Range Plans define logistic needs which have a long lead time. They cover such items as new facilities, improved technical capabilities, and manpower and training requirements. Initially, Mid-Range Plans are used to define those logistic areas that require research and development efforts comparable to those associated with new systems. As the plans progress from the Mid-Range to the current category, they are provided to the appropriate APM(L) to assist him in developing an Integrated Logistic Support Management Plan. The Plans Branch (AIR-401), in conjunction with other AIR-04 Divisions, develops inputs to the Maintainability, Reliability, and Supportability sections of PTAs and TDPs and advises the APM(L) on those sections for any later documents.



Current Logistic Support Plans, covering the immediate five-year period, are reflected in the Integrated Logistic Support Plans prepared for the specific program or project. Each plan must identify organizational interfaces, working procedures, and personnel responsible for such things as the following:

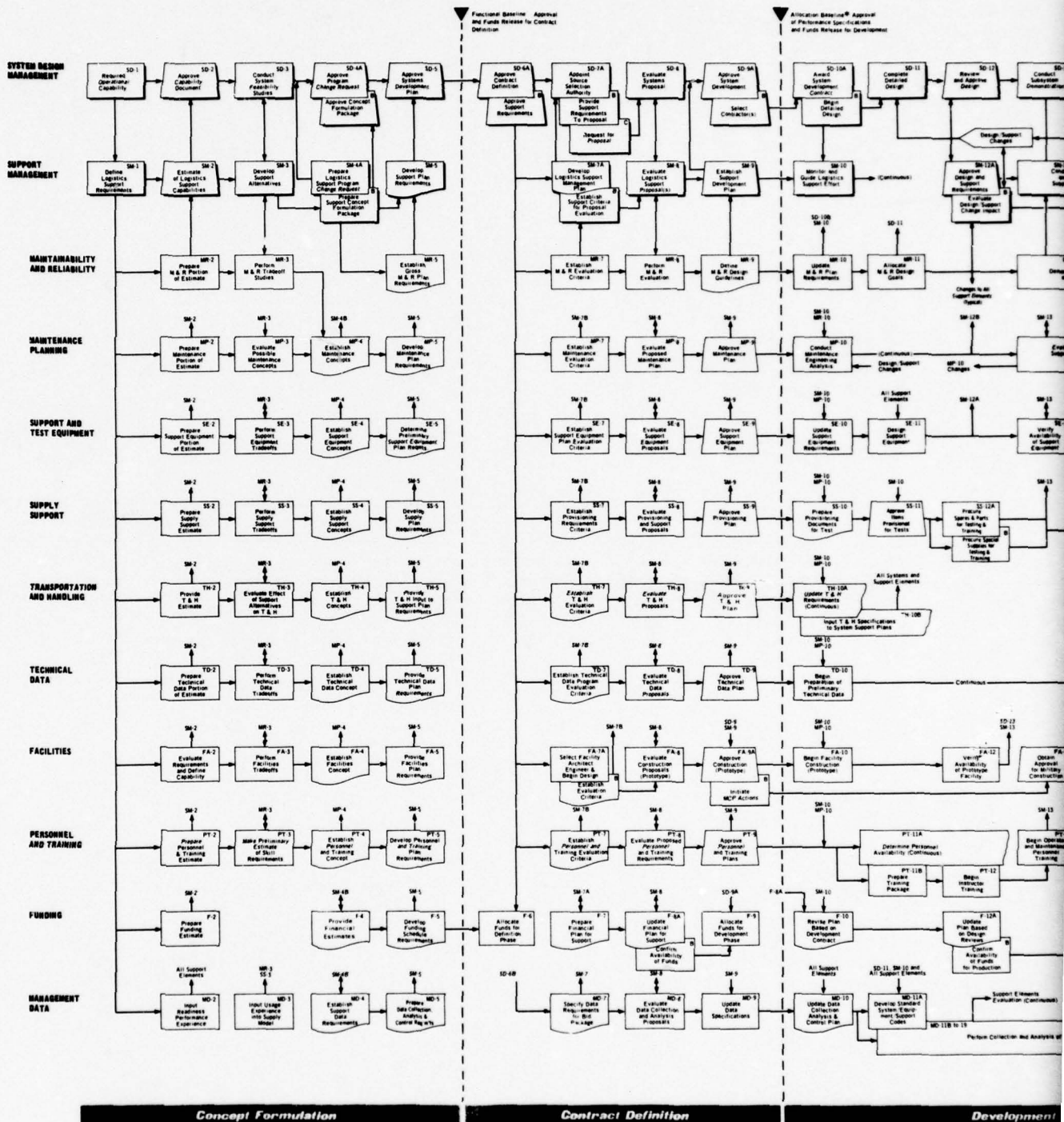
- Implementation of the logistics support development program
- Monitoring of the contractor's M & R effort
- Establishment of policy regarding maintenance engineering practices and procedures for all levels of maintenance
- Development and acquisition of support equipment
- Development and acquisition of facilities
- Procurement and distribution of spares and repair parts
- Implementation of the personnel and training program
- Procurement and distribution of technical data
- Implementation of the transportation, packaging, and handling program
- Funding and data management

Integrated logistics support planning requires coordination of the elements that keep a unit functioning in its intended environment to perform its assigned task. The concept of ILS Planning is depicted in Figure 16 of DoD Directive 4100.35-G, reproduced here as Figure 4-1. The figure illustrates the planning necessary during the various life-phases of a system.

Long-Range, Mid-Range, and Current Plans are not developed specifically for GSE unless the item of GSE is significant in terms of cost, complexity, or application. Plans for GSE are normally included as part of the plans for major aircraft or weapons system programs which become part of the Long-Range, Mid-Range, or Current Plans. Logistic planning for GSE is currently reflected in the Integrated Logistic Support Plans (ILSP) developed for specific items of GSE. Section 4.1.3 discusses the preparation of ILS Plans for GSE and indicates responsibility for their preparation.

#### 4.1.2 Weapon System Planning Data

Weapon System Planning Data (WSPD) forms are used in the Naval Air Systems Command in accordance with NAVAIRINST 13010.1A to promulgate base loading and other weapon system planning data concerning aircraft, airborne missiles, targets, and airborne ordnance. WSPDs provide base loading and other planning data as an integral part of the planning, programming, and budgeting cycle necessary to the acquisition, development, and operational support of Naval weapon systems. These data are used by NAVAIR, ASO, SPCC (Ships Parts Control Center), ESO (Electronics Supply Office), field activities, and Fleet Commands for facilities support planning and budgeting and for other actions related to the provisioning, replenishment, maintenance, procurement, and distribution of aviation and airborne ordnance material. The WSPD also provides planned procurements, delivery schedules, system inventories, planning factors, material support policy, training plans, and other related planning information. WSPD management value is greatest to AIR-417 in the area of PGSE.



2

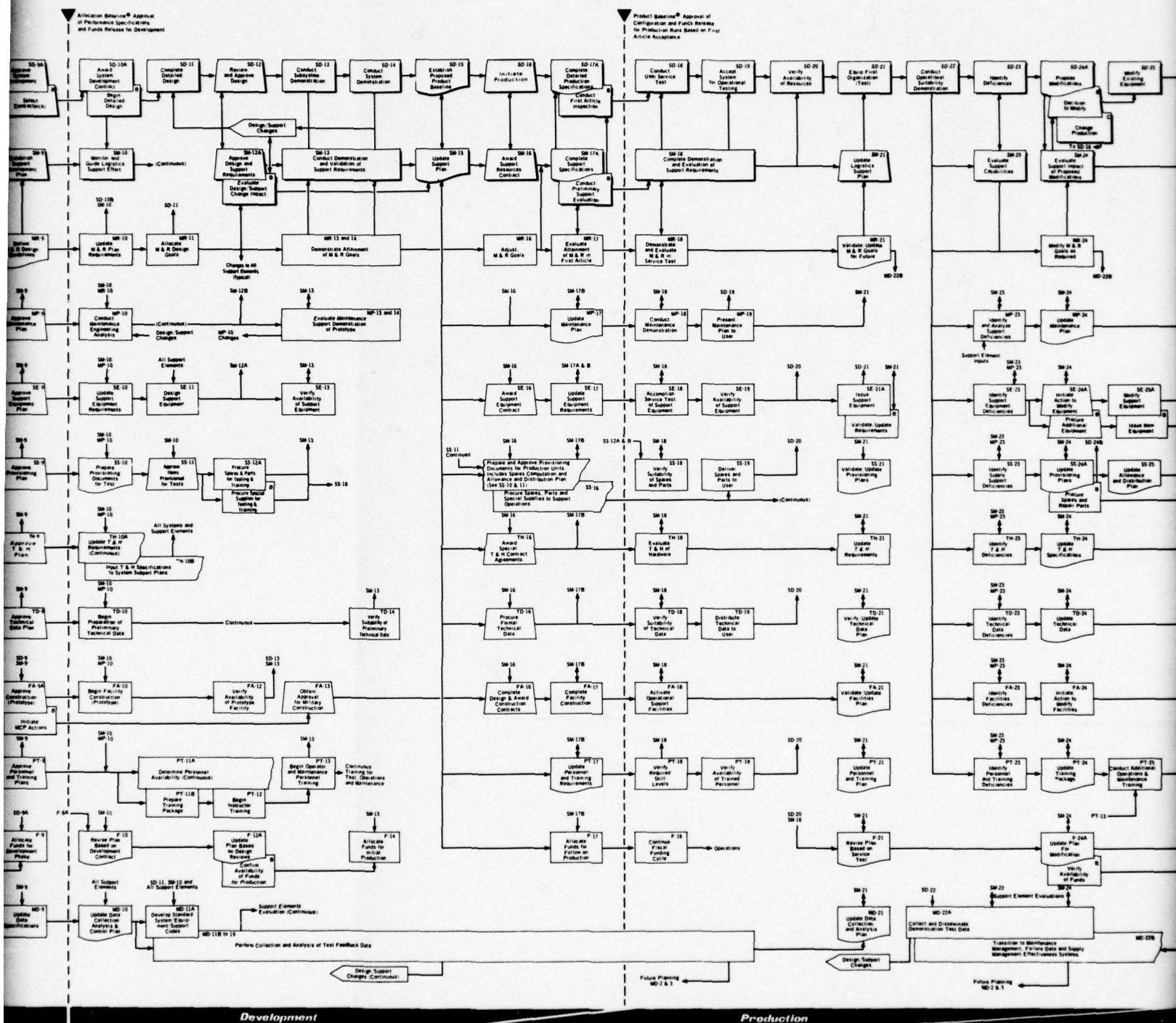
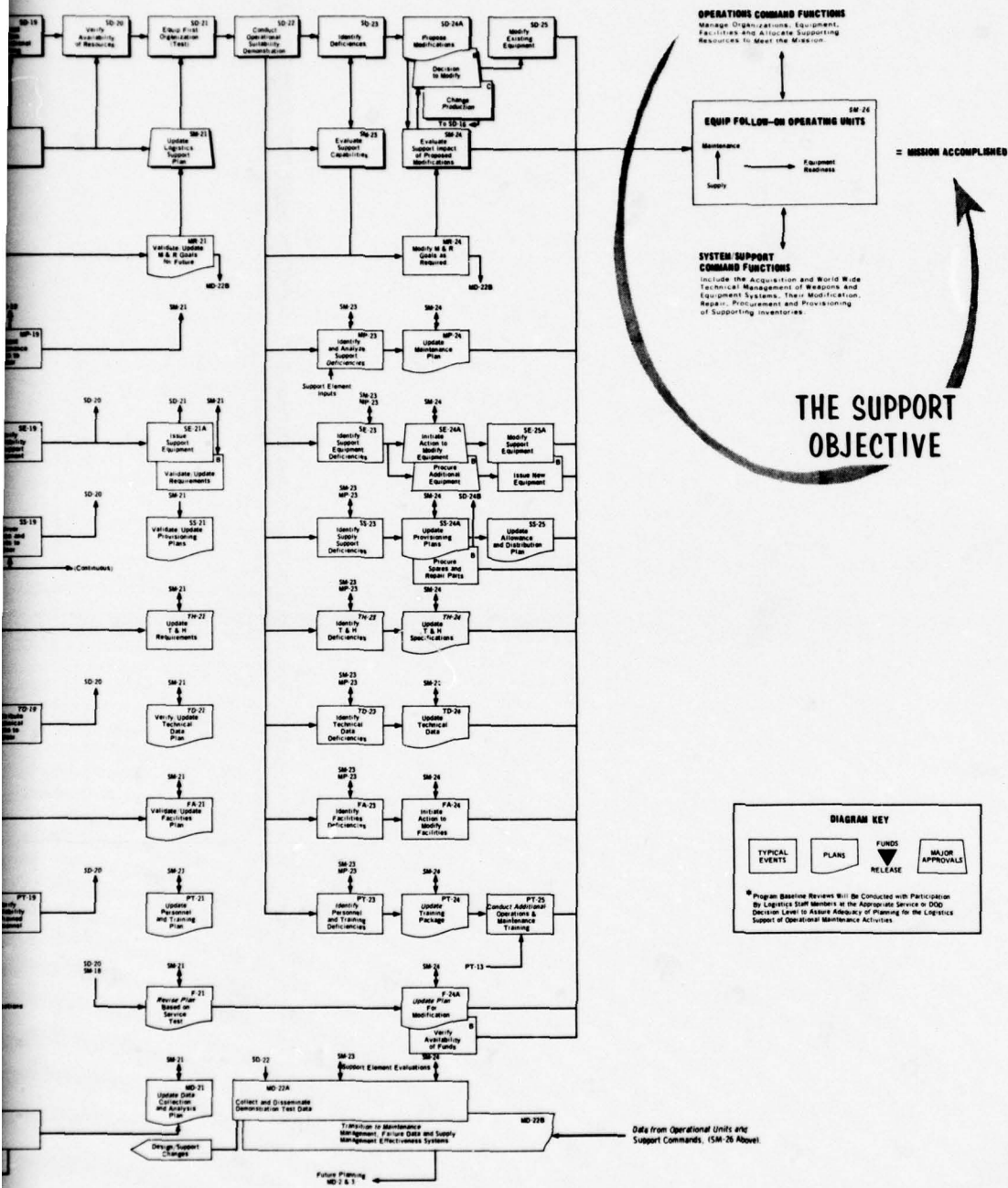


Figure 4-1. MANAGEMENT MATRIX INTEGRATING LOGIS



3



**MANAGEMENT MATRIX INTEGRATING LOGISTICS SUPPORT PLANNING EVENTS**

Individual WSPDs are published and distributed by NAVAIR Notices for selected weapon systems that apply to or are in the FYDP (Five Year Defense Program). When significant changes are made in this program or changes occur in other aspects of programs, WSPDs are revised to reflect such changes.

The WSPD reflects, for a specific project, the base-loading plans and basic support policies that apply to all elements of NAVAIRSYSCOM in planning for operational support and maintenance of the project for five or more years.

Each WSPD represents the NAVAIRSYSCOM and CNO position in support of a specific project. Prior to issuance, the WSPD is agreed upon by the OPNAV Program Coordinator, the NAVAIR Project/Program Manager/Coordinator, and the various NAVAIR offices.

These NAVAIR offices are responsible for developing and testing the project; procuring and distributing support equipment; providing the operational, maintenance, and shipboard facilities; and budgeting the required funds for procurement and support.

In preparing a WSPD for an aircraft, AIR-04 must provide the necessary data concerning the maintenance support level, material support policy, peculiar ground support equipment, training plans, and engine life expectancy. For airborne missiles, targets, and airborne ordnance WSPDs, the necessary data concerning maintenance support levels, component shelf life, material support, peculiar ground support equipment, and periodic checkout and rework must be provided. These data are entered on forms which make up the WSPD for Aircraft or Airborne Missiles, Targets, and Airborne Ordnance Systems. Table 4-1 lists the forms which make up a WSPD.

#### 4.1.3 Integrated Logistics Support Plan

"The objectives of Integrated Logistics Support Planning include the elimination of support requirements whenever practical and reduction of remaining support costs to the optimum level consistent with operational readiness requirements."\* The function of the Integrated Logistics Support Plan (ILSP), therefore, is to state, as early as possible, the support concepts for the equipment. This is as true for end articles of prime equipment as it is for items of support equipment. Support of support equipment is a vital function in a weapons system program; therefore, planning for such support is as important as planning for support of the prime equipment.

The ILSP for GSE contains a statement of the overall policy which will control the type of maintenance action for the item. For example, the guiding concept may be that no preventive maintenance action will be taken, that repair will never be conducted at the organizational level, that complete rework will be conducted every twelve months, that there will be no component rework concurrently with end item progressive rework schedule, or any of many other such provisos.

The GSE ILS plan reflects the results of maintenance planning and analyses (see Section 4.3.3), maintainability and reliability trade-offs and analyses (see Section 4.3.1 and 4.3.2), personnel and training requirements (Section 4.7), publication requirements (Section 4.7),

\*DoD Instruction 4100.35-G, *Integrated Logistics Support Planning Guide for DoD Systems and Equipment*.

Table 4-1. WEAPON SYSTEM PLANNING DATA FORMS

NAVAIR Form Number	Title
13010/1A	Procurement, Inventory, Milestones (Aircraft)
13010/1B	Test Program (Aircraft)
13010/1C	Assignments and Base Loading (Homeport/Rotational) (Aircraft)
13010/1D	Assignments and Base Loading (Carrier Employment) (Aircraft)
13010/1E	Material Support Policy (Aircraft)
13010/1F	Planning Factors/Flying Hours/Training Equipment (Aircraft)
13010/2A	Procurement and Status of Complete Weapon (Airborne Missiles, Targets, and Airborne Ordnance)
13010/2A-1	Procurement and Status of Complete Weapon (Airborne Missiles, Targets, and Airborne Ordnance) Section A — Procurement of Complete Weapon (Continued)
13010/2B	Assignments and Base Loading (Airborne) Missiles, Targets, and Airborne Ordnance)
13010/2C	Procurement Plan (Production Capability) (Airborne Missiles, Targets, and Airborne Ordnance)
13010/2D	Weapon Planning Factors (Airborne Missiles, Targets, and Airborne Ordnance)
13010/2E	Material Support (Airborne Missiles, Targets, and Airborne Ordnance)
13010/2F	Periodic Checkout and Rework (Airborne Missiles, Targets, and Airborne Ordnance)
13010/2G	Special Support Equipment Planned Allocation (Airborne Missiles, Targets, and Airborne Ordnance)
13010/2H	Activity Support for Weapon System Spares/Repair Parts (Airborne Missiles, Targets, and Airborne Ordnance)

spares and repair parts planning (Section 4.5), and other support analysis results. The GSE ILS plan represents, then, the compilation of the results of support planning analysis.

#### 4.1.3.1 AR-30 Programs\*

When an item of GSE is procured with AR-30 (*Integrated Logistics Support Program Requirements for Aeronautical Weapons, Weapons Systems, and Related Equipment*) as a

\*AR-30 released in October 1969, is identical to the former WR-30 titled *Integrated Maintenance Management for Aeronautical Weapons Systems, and Related Equipment*.



contractual requirement, the contractor must submit an Integrated Logistic Support Management Plan (ILSMP) for the item. This plan is to include (a) a maintenance plan, (b) a maintainability program, (c) a publication plan, (d) an augmented support program, (e) a government support plan, (f) facilities requirements, and (g) personnel and training requirements. The ILSMP reflects the contractor's detailed plan for satisfying the logistic requirements of the contract. A preliminary ILSMP is presented for approval at the ILS Planning Conference and updated throughout the life of the contract.

AR-30 also requires the establishment of an Integrated Logistics Support Management Team (ILSMT) which reviews the ILSMP prepared by the contractor. The ILSMT is chaired by NAVAIR, (usually the APML) and is composed of representatives of AIR-04, AIR-534, the Naval Air Systems Command, the Naval Air Maintenance Training Group, the Administrative Contracting Officer, the Inventory Control Point, the Naval Air Integrated Logistics Support Center, the Weapons Personnel Requirements Division, the Naval Air Technical Services Facility, the designated Naval Air Rework Facilities, and the contractor. The ILSMT chairman convenes ILSMT meetings during the design and development of the system equipment. During each meeting, team members report on the status of the support effort in each of their areas, emphasizing milestone progress and significant or anticipated problems. ILSMT members provide detailed information on schedules, identification of problem areas, support equipment availability, status of spare and repair parts, status of technical data, status and accuracy of maintenance documentation, training readiness, repair capability, GFE requirements and support, engineering services, and facilities requirements. The ILSMT reviews all available information and initiates actions to resolve specific support problems. The ILSMT also reviews support capability as it relates to interim support, site requirements, and the Navy Support Date (NSD) and, when warranted, makes specific recommendations for adjustment to the Integrated Logistic Support Management Plan. The ILSMT chairman documents the activities, actions, and decisions of the ILSMT in the official minutes and distributes copies to all ILSMT members and other interested parties. The proposed agenda and requests for data to be provided by the contractor at ILSMT meetings should be furnished to the contractor not later than 15 days prior to the meeting.

#### 4.1.3.2 GSE End Item Contracts

Since a full AR-30 program is expensive, most GSE is procured as individual end articles and AR-30 is not implemented. This does not relieve the requirement for adequate planning. Therefore, for end items of GSE purchased on GSE End Article Contracts, an Integrated Logistics Support Plan must be prepared as required by NAVAIRINST 4700.6. This instruction requires AIR-534 to prepare annually a list of GSE end items to be procured during the forthcoming year and for NAVAIRENGCEN(SE) to prepare the following four submittals:

- . Milestone Plan (Figure 4-2)
- . A preliminary ILS plan
- . Identification of Logistic Manager and Requiring Activity
- . Sample procurement request items and associated language.

Further, NAVAIRINST 4700.6 requires AIR-04 to review the submittals from NAEC(SE), modify them if necessary, and submit them to AIR-534 together with budgetary estimates of the costs associated with the plan.

The format for the ILS plan contained in NAVAIRINST 4700.6 is comprehensive, and can be used as a guide in the preparation of any GSE ILS plan. The format is outlined below.

# MILESTONE PLAN PART I

PHASE: CONTRACT TO FLEET SUPPORT

CLASSIFICATION: EQUIPMENT

NO.		FISCAL YEAR 1969												FISCAL YEAR 1970												FISCAL YEAR 1971												FISCAL YEAR 1972											
		CALENDAR YEAR 1969												CALENDAR YEAR 1970												CALENDAR YEAR 1971												CALENDAR YEAR 1972											
		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
MILESTONE EVENTS/SCHEDULE																																																	
PROCUREMENT AIR TASK																																																	
PROGRAM ACTY ALLO FUNDS																																																	
TECHNICAL DATA PACKAGE																																																	
PURCHASE REQUEST																																																	
1FB/REF/REQ OUT																																																	
1FB/REF/REQ IN																																																	
CONTRACT AWARD																																																	
ENGINEERING REVIEWS																																																	
PRE-PROD/SER TEST MOD AVAIL																																																	
PRE-PROD/SER TEST EVAL																																																	
PRE-PROD/SER TEST REPORT																																																	
PRE-PROD/SER TEST APPROVAL																																																	
INITIAL PROD DELIVERIES																																																	
PROVIDE LPS/LOG REQ.																																																	
LOG MGMT TEAM CON.																																																	
INTRM REP PTS SUPT CONF																																																	
INTRM REPR PTS ORDERED																																																	
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RANGE/DEPTH REPR PTS ORD																																																	
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COMMENCE TRAINING																																																	
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NSD (NAVY SUPT DATE)																																																	
CLASSIFICATION: EQUIPMENT																																																	
PHASE: CONTRACT TO FLEET SUPPORT																																																	

☐ SCHEDULED  
☒ COMPLETE  
 ---SLIPPAGE  
 END ARTICLE GSE MILESTONE PLAN PART I

DATE PREPARED: \_\_\_\_\_  
 APPROVED BY (LOGISTICS MANAGER) \_\_\_\_\_  
 Enclosure (2) PART I

Figure 4-2. ILS MILESTONE PLAN (SHEET 1)

**PHASE: CONTRACT TO FLEET SUPPORT**

**CLASSIFICATION: EQUIPMENT**

[illegible]

☐ SCHEDULED    ☒ COMPLETE    --- SLIPPAGE

END ARTICLE GSE MILESTONE PLAN PART II

DATE PREPARED: \_\_\_\_\_  
APPROVED BY (LOGISTICS MANAGER) \_\_\_\_\_

**Figure 4-2. ILS Milestone Plan (Sheet 2)**



## **1. INTRODUCTION**

### **A. Program Background**

This section describes the basic use of the item for which the plan is developed and indicates the state of development of the item.

### **B. Description**

This section describes the item; how it is used; its basic characteristics, etc.

### **C. Maintenance Philosophy**

This section provides a basic description of the maintenance philosophy for the item. Such requirements as special tools, built-in-test-equipment (BITE), module removal and replacement ground rules, fault-isolation capabilities, fault-repair capabilities, etc., should be spelled out. Also, quantitative maintainability and reliability levels (e.g., MTTR, MTBF) should be established.

This maintenance philosophy should be an input to the item designer as a design requirement. The APM(L) should assure that the philosophy established is consistent with the current state-of-the-art capability and will require the minimum amount of peculiar support equipment and the least maintenance at the intermediate level. Section 4.4.3, Maintenance Planning, provides some additional guidelines for this area.

### **D. Reliability**

This section specifies the reliability requirements or goals of the item. It reflects the results of any reliability analyses conducted as outlined in Section 4.3.2 and represents a goal or requirement that can be established in a contract.

### **E. Maintainability**

This section provides estimates of maintenance man-hours per operating hour, mean time to repair, or other meaningful parameters. Section 4.3.1 outlines the considerations which must be taken into account in establishing such a requirement. The maintainability parameter thus provided should be established as a contractual goal or requirement.

## **2. MAINTENANCE**

### **A. Organizational Level**

This section describes the depth of maintenance to be performed at the organizational level. It indicates what fault-isolation and repair capabilities are available at this level.

### **B. Intermediate Level**

This section indicates what maintenance is to be performed at the IMAs. It contains the same type information as in 2A above relative to the Intermediate Level.

### **C. Depot Level**

This section indicates what maintenance is to be performed at the NARFs.

### **3. CALIBRATION**

This section indicates whether calibration procedures are required. The section will also include qualification requirements.

#### **A. Repair Parts Management**

This section indicates the funding source and ICP for the item.

### **4. TECHNICAL MANUALS**

This section will outline the types of technical manuals and publications necessary to adequately support the item.

### **5. ENGINEERING DRAWING AND ASSOCIATED DATA**

This section specifies the types of engineering drawings and data required to support the item.

### **6. TRAINING EQUIPMENT**

This section specifies whether or not training equipment is required and what specifications will control its fabrication and provisioning.

### **7. TRAINING**

This section indicates whether training is required and the controlling specification for training.

### **8. PERSONNEL REQUIREMENTS**

This section indicates which specification governs personnel requirements.

### **9. CONTRACTOR ENGINEERING TECHNICAL SERVICES (CETS) REPRESENTATIVE**

This section indicates whether CETS is required and, if so, how.

Sections H through K of the GSE ILS plan are prepared after all personnel and training requirements for the item have been analyzed. Section 4.6 of this handbook provides guidelines for establishing GSE training requirements.

### **10. ITEM IDENTIFICATION**

This section indicates whether item identification is required and for what.

In addition to these items, the GSE Integrated Logistic Support Plan discusses whether or not there is an augmented or interim support program planned for the item. The

duration, scope, special features, etc., of the augmented support program should be specified. All items included in an interim support arrangement should be identified and the extent of distribution and time required for interim support should be specified.

NAVAIRINST 4700.6 also requires the preparation of a milestone plan for ILS and the preparation of sample procurement request items and associated contract language.

Upon the preparation of this GSE ILS support package by NAEC(SE), the APM(L) is responsible for coordinating and approving the review. The APM(L) coordinates this review with each of the functional Divisions in the Logistics/Fleet Support Group. For instance, AIR-417 would review Sections 1 and 2, AIR-415 would review Sections 4 and 5, AIR-4135 would review Sections 6 and 7. etc.

#### 4.1.3.3 Operational Logistics Support Plans

Operational Logistics Support Plans (OLSPs) are described in AIR-04 INST 4000.1. These plans contain predeployment and deployment planning data extracted from the ILSP, and are used by fleet-operating forces logistics-support-management personnel at all echelons. OLSPs are intended to supply fleet/operating managers with advance planning data so that they may effectively and efficiently incorporate new items into their inventories, without the necessity of reviewing all previous planning data (WSPDs, TDPs, ILSPs, etc.), portions of which would not be germane to their efforts. When the OLSP is compiled, previous funding data and trade-off decisions contained in the ILSP should be deleted from the OLSP unless they are important to the accomplishment of the operating manager's task.

As stated in AIR-04 INST 4000-1, OLS plans will be developed within the Naval Air Systems Command under the direction of the cognizant APM(L)s or Logistics Managers from the Logistics/Fleet Support Group. These plans will be provided for aeronautical systems/equipment such as aircraft, missiles, targets, avionics, power plants, ground support equipment, and armament. The issuing activity will review and update its plans as necessary. They shall also retain control, provide distribution, and retain additional copies to be distributed as necessary.

OLSPs will be numbered with a two- or three-letter prefix indicating the equipment category ("GSE" for Ground Support Equipment) followed by a three-digit consecutive serial number. The code of the issuing activity (no lower than Branch level) may be placed above the OLSP number. The plan will be dated with the year and calendar month of issue. Revisions to the plan will be identified by alphabetical suffixes beginning with A. Revision pages will be dated with the month and calendar year of issue. The first sheet of the plan will contain the original issue date and revision dates.

Enclosure (1) of AIR-04 INST 4000.1 sets forth the format to be followed in drafting OLSP, for systems and equipment. Deviations from this format should be kept to a minimum although each plan must be adapted to the specific system or equipment. The cover sheet contains title, plan number, and date. A table of contents is included if appropriate. Descriptive paragraphs then should follow these general headings:

#### I. INTRODUCTION

- A. Purpose
- B. System Description



- 1. General
  - 2. Specific
- C. Maintenance Concept
- D. Planning Factors
- II. PLAN TO MAINTAIN
  - A. Organization Level
  - B. Intermediate Level
  - C. Depot Level
  - D. Contract Maintenance
- III. INTEGRATED LOGISTICS SUPPORT MANAGEMENT
- IV. TRAINING/TRAINING EQUIPMENT/ENGINEERING TECHNICAL SERVICES
  - A. Training
  - B. Training Equipment
  - C. Engineering Technical Services
- V. TECHNICAL DATA
  - A. Manuals
  - B. Drawings
- VI. SUPPORT EQUIPMENT/TOOLS
  - A. Peculiar
  - B. Common
- VII. SUPPLY SUPPORT
  - A. GFE
  - B. CFE
- VIII. FACILITIES
- IX. TRANSPORTATION/HANDLING
  - A. Normal
  - B. Special Handling/Packaging
- X. INTERIM SUPPORT
- XI. GOVERNMENT SUPPORT
- XII. FUNDING
- XIII. MAINTENANCE MANAGEMENT DATA
- XIV. MILESTONE DATA

Table 4-2 lists the controlling ILS documentation that is to be consulted in preparing an ILSP.

**Table 4-2. APPLICABLE INTEGRATED LOGISTIC SUPPORT DOCUMENTATION**

Document Number	Title	Document Number	Title
<b>A. GENERAL</b>		<b>PERSONNEL AND TRAINING (Con't.)</b>	
DOD Directive 4100-35-G	<i>Integrated Logistics Support Planning Guide for DOD Systems and Equipment</i>	AR-6	<i>NAVAIR Aviation Personnel Planning Data, Preparation and Submission of Human Engineering Requirements for Military Systems Equipments and Facilities</i>
NAVMATINST 4000.20	<i>Integrated Logistic Support Planning Procedures</i>	MIL-H-46855	
NAVAIRINST 4700.2	<i>The Naval Aircraft Maintenance Program</i>	OPNAVINST 1500.11D	<i>Policies, responsibilities, and procedures for developing personnel and training support requirements information and training programs in support of Naval Aviation</i>
NAVAIRINST 4700.6	<i>Integrated Logistics Support of GSE (Ground Support Equipment) on Ground Support Equipment Contracts, procedures for</i>		
SECNAVINST 4000.29	<i>Development of Integrated Logistic Support for Systems and Equipments</i>		
NAVAIRINST 4000.2	<i>Integrated Logistics Support Planning Procedures</i>		
<b>B. RELIABILITY AND MAINTAINABILITY</b>		<b>F. TECHNICAL DATA</b>	
MIL-STD-470	<i>Maintainability Program Requirements for Systems and Equipments</i>	MIL-STD-480	<i>Configuration Control - Engineering Changes, Deviations and Waivers</i>
MIL-STD-471	<i>Maintainability Demonstration</i>	MIL-HDBK-222 (Navy)	<i>Navy Authorized Data List</i>
MIL-HDBK-472	<i>Maintainability Prediction</i>	MIL-D-5480	<i>Data, Engineering and Technical Reproduction Requirements for</i>
AR-10	<i>Maintainability of Avionics Equipment, General Requirements for</i>	WR-1	<i>NAVAIR Supply Item Provisioning</i>
MIL-M-23313	<i>Maintainability</i>	MIL-M-15071	<i>Specification for Technical Manuals</i>
MIL-STD-721	<i>Definitions of Effective Terms for Reliability, Maintainability, Human Factors, and Safety</i>	MIL-M-24100A	<i>Technical Manuals</i>
MIL-HDBK-217A	<i>Reliability Stress and Failure Rate Data for Electronic Equipment</i>	NAVMATINST 4000.15	<i>Management of Technical Data and Information in the Department of the Navy</i>
MIL-STD-785	<i>Requirements for Reliability Program (Systems and Equipments)</i>	NAVAIRINST 4000.9	<i>Management of Technical Data and Information</i>
MIL-STD-781	<i>Requirements for Reliability Program</i>	NAVAIRINST 5600.9	<i>Technical Manual Management Program</i>
		NAVAIRINST 4200.15	<i>Technical Data Procurement, Policy and Procedures for</i>
<b>C. MAINTENANCE PLANNING</b>		<b>G. SUPPLY</b>	
MIL-T-24309 (Ships)	<i>Technical Support Plan for Electronics Equipment</i>	MIL-P-21873 (Navy)	<i>Provisioning, Initial Support, General Requirements for</i>
MIL-HDBK-472	<i>Maintainability Prediction</i>	MIL-T-24309	<i>Technical Support Plan</i>
MIL-STD-470	<i>Maintainability Program Requirements for Systems and Equipments</i>	WR-1	<i>Supply Item Provisioning</i>
		WR-2	<i>Contractor Support</i>
<b>D. SUPPORT AND TEST EQUIPMENTS</b>		WR-30	<i>See above</i>
MIL-T-24309 (Ships)	<i>Technical Support Plan for Electronics Equipment</i>	NAVMATINST 4425.3	<i>Contractor Support of New Weapons/Equipment</i>
MIL-E-16400F	<i>Electronic Equipment, Naval Ship and Shore; General Specification</i>	NAVSUPINST 4423.14	<i>Naval Material Command (NMC) Uniform Source, Maintenance and Recoverability Codes (SM&amp;R Codes)</i>
WR-S	<i>Support Equipment Design, Approval, Selection, and Ordering</i>	NAVAIRINST 4423.2	<i>Support Planning Policy and Provisioning Conference, Procedures Governing</i>
AR-30	<i>Integrated Logistics Support Program Requirements for Aeronautical Weapons, Weapons Systems, Related Equipment</i>	NAVAIRINST 4423.7	<i>Selection and Management of Aeronautical Spares, Repair Parts and Special Support Equipment</i>
MIL-T-18306A	<i>Support Equipment Report</i>	BUSANDAINST 4423.11	<i>Provisioning Practices and Direction</i>
<b>E. PERSONNEL AND TRAINING</b>		NAVAIRINST 4400.4	<i>Management of Repairables</i>
MIL-T-7755B	<i>NAVAIR Maintenance Trainer Data</i>	NAVAIRINST 4420.1A	<i>Naval Air Systems Command AMMRL (Aircraft Maintenance Material Readiness List) Program, management and operation of</i>
AR-25	<i>NAVAIR Military and Civilian Training Requirements for Contractor Supported Training</i>		
AR-32	<i>NAVAIR Training Parts Provisioning Document</i>	<b>H. CONTRACTOR ENGINEERING TECHNICAL SERVICES</b>	
AR-30	<i>See D</i>	DOD Directive 1130.2	
MIL-H-2217A	<i>NAVAIR, Human Factors Data for Aircraft</i>	NAVMATINST 4350.10B	<i>Engineering and Logistic Services for designated Weapon Systems, related components and equipment, Policy and Procedures for</i>
MIL-T-23991	<i>Training Devices, Military; General Specification</i>	NAVAIRINST 4350.1	
OPNAVINST 1500.11	<i>Responsibility for Developing Personnel Requirements</i>	NAVAIRINST 4350.2 (CH-1)	<i>Engineering and Technical Services (ETS), Policy and Procedures for</i>
NAVMATINST 1500.2	<i>Training Support for New or Modified Equipments</i>	AR-25	<i>See above</i>
		<b>I. FACILITIES</b>	
		MIL-T-24309	<i>Technical Support Plan for Electronics Equipment</i>
		MIL-HDBK-472	<i>Maintainability Prediction</i>
		WR-2	<i>Contractor Support of NAVAIR Contracts</i>
		OPNAVINST 11010.1E	<i>Shore Installations and Facilities Planning and Programming</i>

## 4.2 BUDGETING AND FUNDING

### 4.2.1 Terminology and Definitions

A budget is a plan in which prominence is given to the amounts of money needed to carry out stated objectives. The DoD budget is constructed in a prescribed format. Each sum shown in the DoD budget is justified by a summary statement of the purposes to which that sum will be put. Supporting the summary are several levels of backup data which have been reviewed and adjusted at each management level above the level at which budget inputs are made. In NAVAIR, any responsible employee may be in a position to provide budget inputs.

Budgeting is the process by which budgets are constructed, passed upward, revised, readjusted, and critiqued through Service and DoD channels, through the Bureau of the Budget and the President, and finally the Congress. Development, presentation, and justification of a budget begins 18 months before the beginning of the fiscal year and continues until the passage of the Appropriation Act by Congress — a point sometimes reached well after the fiscal year has begun. Usually, budgets for two fiscal years are in process simultaneously. (See Figure 4-3).

Funding is the process by which funds, appropriated by the Congress to finance plans presented in the budget move back through channels and are eventually used to pay for hardware and services specified in the approved plan. "Funds" means authority to commit the Government to pay specified amounts for specified purposes. No actual money is involved until the Treasury writes a check to pay for articles or services received — possibly three or four years after budget approval. The system by which the appropriated funds are controlled for this long period of time involves Apportionment, Allocation, Allotment, and Accounting. The process of putting funds to use is called Execution of the Budget.

Budgeting and funding are handled by orderly, if complex, systems operated by financial specialists, to serve the needs of managers and technicians who are concerned with implementing the approved plans. If the GSE technician is to be well served, he should have an understanding of the systems. This section broadly outlines budgeting and funding processes. Detailed descriptions of procedures that are primarily the concern of financial specialists are omitted.

There is a tendency to think that budgeting and accounting involve precisely defined terms and procedures. This is not the case. The chronology of events in preparing and justifying a budget is never the same in any two years, and the meanings of terms may vary from one directive or manual to another. The basic goals of Resources Management Systems (RMS), as promulgated by DoD Instruction 7000.1, will not be reached for some time to come, involving as they do a revolution in management procedures. Meanwhile, systems and procedures will constantly be revised. A few of the terms frequently encountered are defined below. Sources of the definitions are shown in parentheses.\* Knowledge of these terms is essential to an understanding of directives relating to budgeting and funding.

**Allocation** — An authorization by a designated official of a component of the Department of Defense making funds available within a prescribed amount to an operating agency for the purpose of making allotments.

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\*Major portions of the material are derived from NAVSO P-2457 (Revised July 1969).



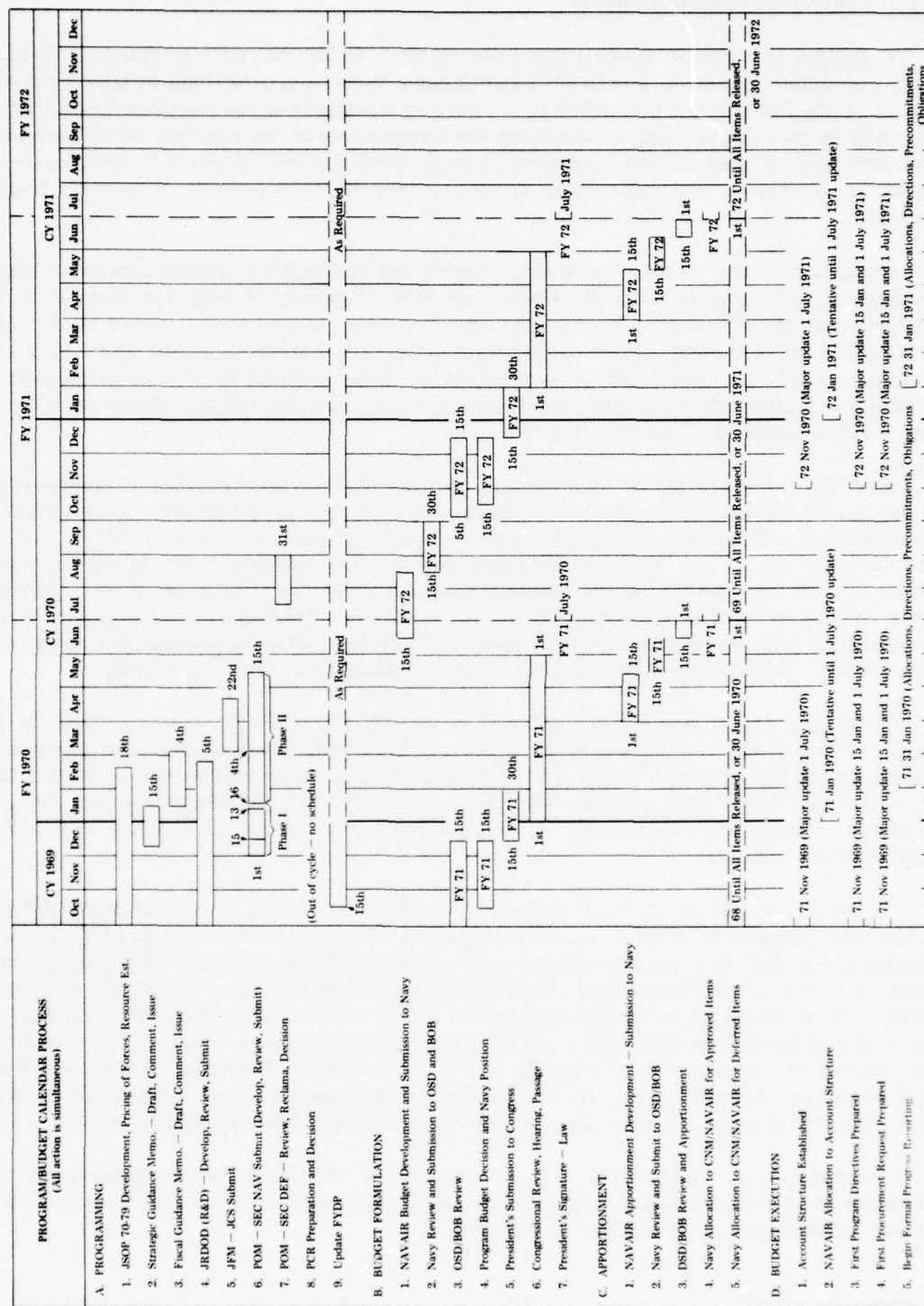


Figure 4-3. TIME RELATIONSHIPS FOR BUDGET ACTIVITIES

**Allotment** — An allotment is an authorization to an official to incur an obligation. The heads of operating agencies make allotments to the heads of organizational units in amounts that may not be allowed to exceed, in the aggregate, the amount of allocation for a specified period of time.

**Appropriation, Multiple-Year** — An appropriation which is available for incurring obligations for a definite period in excess of one fiscal year. (DoD 5000.8).

**Breakouts** — (A program for) the earliest possible identification and screening of parts and repair parts which account for the preponderance of spare parts procurement dollars in order to determine the optimum procurement method, particularly the potential (for competitive procurement) or purchase direct from the parts manufacturer. (NAMVAT P4200.33).

**Budget** — A planned program for a fiscal period in terms of (a) estimated costs, obligations and expenditures, (b) source of funds for financing, including reimbursements anticipated and other resources to be applied, and (c) explanatory and workload data on the projected programs and activities. (DoD 5000.8).

**Budgeting** — The process of translating approved resource requirements (manpower and materiel) into time-phased financial requirements. (OPNAV 90P-1).

**Budget Mark-Up** — Revision of a budget in detail; at a review level, based on consideration of policies, programs, scheduling, cost factors, and other pertinent data, as a basis for approval or obligation authorization. (DoD 5000.8).

**Commitment** — A firm administrative reservation of funds, based upon firm procurement directions, orders, requisitions, or requests, which authorizes the creation of an obligation without further recourse to the official responsible for certifying the availability of funds.

**Department of Defense Programming System** — An integrated programming system for the review and approval, on a continuing basis, of proposed Department of Defense programs, for changes to previously approved programs, and for the maintenance and updating of the FYDP (Five Year Defense Program). (OPNAV 5000.19).

**Department of the Navy Program Objectives (PO)** — Provides the Department of the Navy the force level objectives approved by the Secretary of the Navy and projected eight years, commencing two years after the fiscal year in which approved and resource levels for five years (personnel, procurement, research and development, and supporting programs). (OPNAV 5000.19).

**Five Year Defense Program** — The official OSD publication which summarizes the approved plans and programs of the Department of Defense Components. (DoD 7045.7).

**Obligation** — The commitment of funds to a purchase order, contract, or other procurement document that will result in an expenditure of funds.

**Program** — A combination of program elements designed to express the accomplishment of a definite objective or plan which is specified as to the time phasing of what is to be done and the means proposed for its accomplishment. Programs are aggregations of program elements and in turn aggregate to the total Five Year Defense Program. (DoD 7045.7).

**Program/Budget Decision (P/BD)** — A Secretary of Defense decision, in prescribed format, on a DoD Component's budget estimates. (DoD 7045.7).

**Program Change Decision (PCD)** — A Secretary of Defense decision, in prescribed format, on a program change request, or on any other matters affecting the Five Year Defense Program. (DoD 7045.7).

**Program Change Request (PCR)** — Proposals, in prescribed format, for changes to the approved data in the Five Year Defense Program. (DoD 7045.7).

**Program Element** — The basic building block of the Five Year Defense Program, is a description of the mission to be undertaken and a collection of the organizational entities identified to perform the mission assignment. Elements may consist of forces, manpower, materials (both real and personal property), services, and associated costs as applicable. (DoD 7045.7).

**Program Objective Memorandum (POM)** — A memorandum in prescribed format submitted to the secretary of Defense by the Secretary of the Navy which recommends the total resource requirements within the parameters of the published Secretary of Defense physical guidance.

**Programming** — The process of preparing a program, especially in terms of quantitative, physical requirements of manpower, materiel, and facilities. (DoD 5000.8).

**Programming Budgeting System** — The procedures for the establishment, maintenance, and revision of the Five Year Defense Program and the DoD Budget. (DoD 7045.7).

**Reclama** — A presentation by an agency, requesting restoration of all or part of a reduction in a budget estimate made by a higher review level. (DoD 5000.8).

**Reprogramming Actions** — Changes in planned application of financial resources from the purposes originally contemplated and budgeted for, testified to, and described in the budget justifications submitted to the Congressional Committees, other than changes made to comply with the intent of the Congress in its action on legislation for appropriations for the Defense establishments. (NAVCOMPT 7133.1).

**Total Obligational Authority (TOA)** — The total financial requirements of the Five Year Defense Program or any component thereof required to support the approved program of a given fiscal year. (DoD 7045.7).

**Glossary Reference List** — DoD INST 5000.8, *Glossary of Terms used in the Areas of Financial, Supply, and Installations Management*. This glossary is enclosure (1) to DoD Instruction 5000.8 *Glossary of Terms Used in the Areas of Financial, Supply, and Installation Management*, which was disseminated as an enclosure to SECNAV Instruction 5000.13. It contains approximately 1,200 terms "for general-reference use."

#### 4.2.2 Authority and Responsibility

The authority and responsibilities for financing military needs between the levels of the President and Commander, Naval Air Systems Command is described below.



**Congress** — Article I of the United States Constitution assigns to the Congress the responsibility to "provide for the common defense" and to "provide and maintain a Navy."

Section 9, Clause 7, of this Article further provides that "no money shall be drawn from the Treasury, but in consequence of appropriations made by law." In the Congress, budget estimates are considered by the Armed Services Committees and the Appropriations Committees of both the House of Representatives and the Senate, who hold formal hearings with OSD and service representatives. The Armed Services Committees are responsible for authorizing legislation to permit appropriations to be made while the Appropriations Committees are responsible for appropriating funds. Full Congressional action is necessary to increase an authorization for a fiscal year once the authorization has been enacted.

Senate hearings, at which the President's Budget is justified, normally follow the House hearings. At these hearings, requests (reclamas) may be submitted to the Senate Appropriations Committee for consideration of changes in the House action.

**The President** — The President, through the Bureau of the Budget's reviews, revises, and approves the estimate of all departments and agencies and consolidates these estimates into the Executive Budget — a complete government-wide financial plan for the following fiscal year. He assumes official responsibility for the integrity and validity of the estimates contained in the Executive Budget. By law, no official of an executive department or agency may take any action or volunteer any opinion contrary to official budget policies expressed by the President in his budget, except through proper official channels.

**Bureau of the Budget.** Section 207 of the Budget and Accounting Act of 1921 authorized establishment of the Bureau of the Budget under the Treasury Department. The Bureau of the Budget (BOB) was subsequently transferred from the Treasury Department to the Executive Office of the President. The Director is appointed by the President without confirmation by the Senate.

**Secretary of Defense.** The Secretary of Defense participates actively in the budgetary process. Either the Secretary or his deputy issues all major Program/Budget Decisions. The Secretary of Defense also plays a major role in the justifying of the budget before Congressional committees.

**Assistant Secretary of Defense (Comptroller).** Under the Secretary of Defense, the ASD (Comptroller) is assigned responsibility for supervising and directing the preparation of budget estimates for the Department of Defense. He establishes principles, policies, and procedures concerning preparation and execution of budget, accounting, reporting, and audit functions applicable throughout the Department of Defense. He is also responsible for the integrated programming system, including updating of the FYDP (Five Year Defense Plan).

**Assistant Secretary of Defense (Systems Analysis).** DoD management embodies a planning-programming-budgeting process. The Office of Assistant Secretary of Defense (Systems Analysis) reviews requirements for forces, weapons systems, equipment, personnel, and nuclear weapons. This office assists the Secretary of Defense in initiating, monitoring, and reviewing requirements studies and cost-effectiveness analyses. In meeting these responsibilities, the ASD (Systems Analysis) delves into active and reserve forces and equipment, total manpower, logistics guidance, weapons systems, and major end items of material, nuclear weapons, transportation, intelligence, and command communications systems, and participates in or coordinates all phases of the planning-programming-budgeting process.

**Secretary of the Navy.** The Secretary of the Navy prepares and submits the Navy budget to the Secretary of Defense. He also justifies the budget before Congress and administers the funds made available by the Congress. The officials and organizations discussed in the following paragraphs assist him in these efforts.

**Comptroller of the Navy (NAVCOMPT).** Under the Secretary of the Navy, and subject to the general policies of the ASD Comptroller, the Comptroller of the Navy develops and establishes the basic fiscal policies of the Department of the Navy. He formulates principles and policies and prescribes procedures for budget preparation and administration, financial management, accounting, audit, disbursing, and reporting.

NAVCOMPT translates the policies plans, and programs of the Navy and Marine Corps into a formal budget for presentation to the Secretary of Defense, the Bureau of the Budget, and the Congress. This office issues guidance to the bureaus, commands, and offices on the form and content of budget estimates and supporting data and on the availability of funds and the purposes for which funds may be spent. This guidance is binding.

**Chief of Naval Operations.** The Chief of Naval Operations determines the "material support needs of the Operating Forces of the Navy (less Fleet Marine Forces and other assigned Marine Corps forces). . ." The Chief of Naval Material is responsible for meeting the "material support needs of the Operating Forces of the Navy. . ."

The CNO is responsible for the overall coordination, content, and priorities of the program the budget is designed to support. The CAB (CNO Advisory Board) assists the CNO in administering his budget-program responsibilities.

**Navy Program Planning Office (NPPO).** The Navy Program Planning (NPPO) (OP-090) is responsible for the "integration of planning, programming, budgeting, and appraising" within the Office of the Chief of Naval Operations. This Office supports the Chief of Naval Operations by reviewing programs and financial and manpower decisions, evaluating their impact on the total Navy program, and recommending adjustments to restore balance. NPPO is the primary point of contact within OPNAV for program and budgetary matters.

**Chief of Naval Material (CNM).** The Chief of Naval Material (CNM) is responsible for planning the utilization of resources to meet those material support needs of Navy and Marine Corps Operating Forces which are provided by the Naval Material Command. CNM's Deputies for Programs and Financial Management and for Development assist CNM in discharging these responsibilities.

**Commander, Naval Air Systems Command.** The Commander, Naval Air Systems Command, is responsible for the effective use of resources under his control. The Deputy Chief for Plans and Comptroller, provides the staff functions required for the financial management of funds under NAVAIR control. Project Managers and operating group Assistant Commanders are responsible for preparing the procurement and technical documentation necessary to expend allocated funds for approved purposes.

#### **4.2.3 DoD Resources Management Systems**

Budgeting and accounting are procedures within the broad context of Department of Defense Resources Management Systems, which include the following:

- Programming and budgeting systems

- Accounting systems
- Other systems for management of resources for operating activities
- Systems for management of acquisition, use, and disposition of (1) inventory and (2) capital assets

DoD Directive 7000.1, *Resources Management Systems of the Department of Defense* issued in 1966, established the objectives of RMS.

The budgeting and funding process is accomplished by the DoD programming, budgeting, and accounting systems. Four categories of activity are simultaneously and almost continuously in progress. These are as follows:

- Programming
- Budget Formulation
- Apportionment
- Budget Execution

Figure 4-3 illustrates the time-phasing of these activities, as scheduled in NAVAIR for the fiscal year 1971 budget cycle. Overlapping fiscal year 1970 activities are also shown. Fiscal year 1972 activities are now known; these commenced in fiscal year 1970 and, if shown, would duplicate the fiscal year 1971 activities, slipped one year in time.

#### 4.2.4 Programming

The DoD programming system is outlined below to provide an understanding of the logic on which the budgeting system is based.

Programming is a portion of the DoD Resource Management Systems which includes establishment of goals, objectives, and schedules for achieving them, collecting functions and activities sharing the same objective into families (i.e., programs), and estimating resource requirements for each.

The objectives of the Department of Defense Programming System may be defined as follows:

- To relate resources to Defense missions and requirements. This is accomplished by identifying the resource "inputs" — men, material, and services required for military "outputs".
- To link planning to budgeting.
- To establish programs around missions rather than military departmental lines.
- To stimulate and harness "interservice rivalry" and other competitive incentives by providing a framework in which services and organizations can compete to provide the forces required for such missions.
- To establish a rational program structure which encompasses all Defense activities.
- To provide a capability for making cost-effectiveness studies of alternative force structures or weapons systems.
- To appraise programs on a continuing basis.
- To establish a single channel for major decisions on Defense programs.



**Five-Year Defense-Program (FYDP).** The Five-Year Defense Program (FYDP) is the sum of all approved programs of the Department of Defense. It can be visualized as a three-dimensional matrix, in which resource inputs, phased over a five-year period, are combined with military outputs or programs, phased over the same period (see Figure 4-4). Relating inputs (resources) to outputs (forces) in this way provides the Secretary of Defense with two major planning dimensions: (1) he can determine the military forces required to counter the anticipated threat; (2) he can allocate available resources to those forces. The FYDP is expressed in terms of three major components; programs, program elements, and resource categories. The costs of these are tabulated over a five-year period.

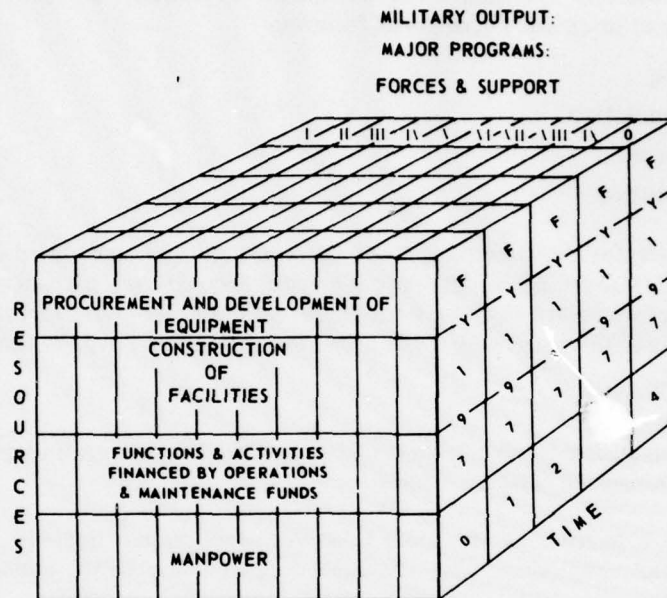


Figure 4-4. THE FIVE-YEAR DEFENSE PROGRAM (FYDP)

**Program Element.** The program element is the building block of the Five-Year Defense Program. It is a description of the mission to be undertaken and a collection of the organizational entities that will perform the mission assignment, and their costs. There are approximately 1100 program elements in the entire FYDP with almost 175 in the Navy RDT&E program.

**Program.** A DoD program is a combination of program elements designed to accomplish a definite objective within a specified time by a stated means. Program elements either complement one another or are close substitutes for one another. The entire defense activity is organized into ten major programs as follows:

- I. Strategic Forces
- II. General Purpose Forces
- III. Intelligence and Communications

- IV. Airlift/Sealift
- V. Guard and Reserve Forces
- VI. Research and Development
- VII. Training, Medical, and Other General  
Personnel Activities
- IX. Administration and Associated Activities
- X. Support of Other Nations

**Resource Categories.** Resource categories — a unique type of resource or a homogenous grouping of related procurement, manpower, or construction items — provide the second dimension of planning. The four major resource categories are items of equipment, military construction, the functions and activities financed by operations and maintenance appropriations, and manpower. Just as the sum of all the program elements constitutes the total defense output, the sum of all resource categories constitutes the total input. For example, the program element Fleet Ballistic Missile System is the force provided by all of the resources allocated to it — the missiles, submarines, supporting Fleet, shore facilities, and personnel. Programs and resources categories, taken together, provide a complete picture of the sources and uses of national resources among the various defense activities. Resource categories are listed in the Material and Construction Annexes to the FYDP.

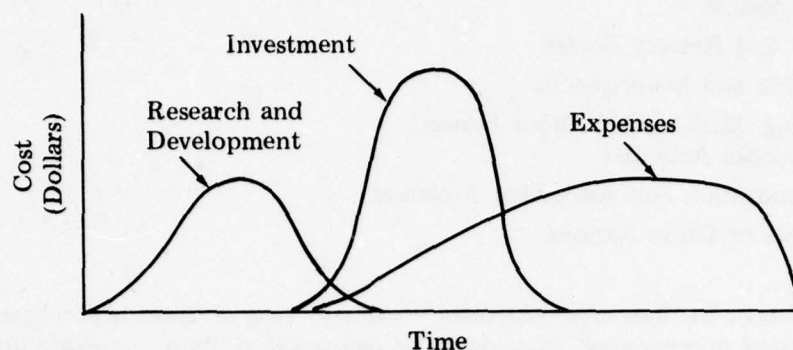
**Cost Categories.** Since major program decisions are made in terms of program elements, the DoD has established a method of relating costs of program elements so that the relative economy or efficiency of the elements may be determined. To provide better data for decision-making, all the financial requirements for a given program element for a fiscal year are lumped together as Total Obligational Authority (TOA). TOA includes all funds available to support a program or program element for a year, regardless of appropriation category or the year in which appropriated.

Costs are also broken down into program cost categories which are defined in DoD Instruction 7040.5 (SECNAV 7040.6), *Definitions of Expenses and Investment Costs*, as follows:

- **Expenses.** Expenses are costs of resources consumed in use. These include labor costs, material consumed in use, and services received, except when these costs are incurred in the production or construction of investment items.
- **Investment.** Investment costs are basically the costs of real property and equipment. Initial outfitting of a major end item of equipment, such as a ship or aircraft, with furnishing, fixtures, and equipment necessary to make it complete and ready to operate is part of the initial investment cost.
- **Research and Development.** R&D costs are program costs primarily associated with research and development efforts, including the development of a new or improved capability to the point where it is ready for operational use.

Figure 4-5 depicts the three cost categories as they relate to the time-phased life of a typical weapon system.

Initial procurement of GSE, including spares and repair parts, is an "investment" cost (except for Navy Stock Fund items). GSE maintenance in the fleet is an "expense" cost.



Research and  
Development

Development of a New Capability  
to the Point of Introduction into  
Operational Use

Investment

Costs Required Beyond the De-  
velopment Phase to Equip Forces  
with New Capability

Expenses

Recurring Costs Required to  
Operate and Maintain the Capa-  
bility

*Figure 4-5. COST BY CATEGORIES AS A  
FUNCTION OF TIME*

Updating of the FYDP is a major activity of Project Managers and all higher levels of management. The prescribed updating documents are the Program Objective Memorandum (POM) or, by special exception and with approval of the Secretary of the Navy, the Program Change Request (PCR). The procedures for moving POMs or PCRs upward through service and DoD channels are complex. A description of the process is not essential to an understanding of budgeting, and will be omitted.

#### 4.2.5 Budget Formulation and Processing

##### 4.2.5.1 Relationship to the FYDP

Importance of the budgetary process. Budgeting is definitely not a "technical accounting matter" concerned with "keeping the books". It is within the framework of the budget formulation process that programs must compete for approval and implementation. Just as plans are meaningless unless they are approved for inclusion in the Five-Year-Defense Program (FYDP), programs must be included in the budget. In this continuing process, plans are translated into programs and programs are incorporated into budgets selectively.

Approval of a program in the FYDP does not guarantee its funding, since the budget is constrained by estimated national dollar resources. Because the resources that can be allocated to defense in any given year are usually less than the total of the programs approved in the FYDP, some programs may be reduced or deleted when the budget is formulated either to (1) reduce the overall defense or Federal budget, or (2) to provide for other programs of higher priority, or (3) because of increased costs of other programs in the budget.



#### 4.2.5.2 Budgetary Structure

Congress appropriates defense funds for the fiscal year in an Appropriation Act whose principal subdivisions are:

- Title I: Military Personnel
- Title II: Operation and Maintenance
- Title III: Procurement
- Title IV: Research, Development, Test and Evaluation  
(RDT&E)
- Title V: Special Foreign Currency Program
- Title VI: General Provisions

The appropriation structure described above and the essential features of the program structure described in the previous section will probably both be continued for some time since each meets a need not met by the other. The appropriation structure is designed primarily to meet the needs of Congress. Since it is structured on a hardware basis, it provides the Congress with a convenient means for correlating the RDT&E appropriation with various procurement appropriations. It also readily identifies the dollars relating to major categories of weapon system developments, i.e., aircraft, missiles, etc. The budget furnishes the Congress with line items comprising the programs for the ensuing or budget year.

#### 4.2.5.3 The Budgetary Process

In the budgetary process, the program in the FYDP is revised to reflect the decisions of the Secretary of Defense. The revised program is converted to the appropriation structure for the three-year period to be included in the budget. Figures 4-6 and 4-7 illustrate the forms used by NAVAIR in constructing the budget. NAVWEPS form 7110/7 provides a breakdown by cost element for each item. Last year, current year, and budget year costs are presented. NAVWEPS Form 7110/8B justifies each item. Seven spaces are provided for fiscal year costs; these tie the item element the FYDP estimates. In the budgeting phase of the planning-programming-budgeting process, such things as production schedules, prices, lead-time, activity rates, personnel grade structure, training requirements, etc., are required to reflect the program proposed for inclusion in the budget.

The budget formulation process is characterized by successive reviews and decision points. It is a characteristic of this process that many items proposed for approval are reduced or eliminated. Though it is possible to criticize this process on the grounds of time and talent required, it does serve essential purposes. The objective of the process is a budget which provides the best possible military worth and program balance within the limits of anticipated resources.

**Concept of the "Balanced Budget."** A budget which provides the maximum value output for a given level of expenditure implies a condition of balance such that no item is included in the budget which is less essential than any item not included. In order to approach this ideal, it is necessary to weigh alternatives. Different items competing for inclusion in the budget must be compared. To provide for this choice, it is necessary that more items be considered initially than can be included in the approved list submitted to higher authority.



**CONFIDENTIAL**

(When filled in)

**BUDGET ITEM JUSTIFICATION SHEET**  
NAVJEPs FORM 7110/88 (11-64)

APPROP

BUDGET ALT. NO.

SHOPPING LIST ITEM NO.		P-1 ITEM NOMENCLATURE					DATE
PLANNED PROCUREMENT							
	FY	FY	FY	FY	FY	FY	FY
QUANTITY							
COST (In millions)	\$	\$	\$	\$	\$	\$	\$
REQUIREMENTS AND READINESS							

PRODUCTION AND CONTRACT DATA													
	FY					FY					FY		
METHOD OF PROCUREMENT													
TYPE OF CONTRACT													
PHASING OF COMMITMENTS AND OBLIGATIONS (Millions)													
	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	LATER
COMMITMENT (\$)													
OBLIGATION (\$)													
REMARKS													

P-1 SHOPP. LIST  
ITEM NO.

PAGE NO.

**CONFIDENTIAL** (When filled in)

Figure 4-7. BUDGET ITEM JUSTIFICATION SHEET



In general, lower-level activities consider a list of requirements which exceeds what can be approved. The higher organization, for instance a command reviewing submissions from its activities, will then consolidate submissions from these activities and bring the entire list into balance with the Program Objective Memorandum by eliminating or reducing items considered to be marginal in that context. This process at all levels of review is designed to develop a close approximation of a balanced program for submission to the next higher echelon where the process is repeated as balance is sought in a broader context. The process continues to the Congressional level where defense needs are balanced against other government needs.

#### 4.2.5.4 Justification

Justification is closely related to the process described in the previous paragraph. Each item in the estimates that is submitted must be supported by written justification. This justification process serves to support the inclusion of items in the program.

Budget justification is designed to demonstrate that the proposed estimate meets the following criteria:

- Is within the framework of the law and approved administrative guidelines
- Is essential to the effective performance of the mission assigned
- Is the most economical and effective method of accomplishing the purpose
- Is feasible with respect to timing and availability of resources

The "reclama" is closely related to budget justification and mark-up and plays a vital role in the process of balancing the budget. A reclama is a request for restoration of an item deleted from a budget submission by a higher level organization in its mark-up. In general, successful reclama requires improved justification. The reclama makes it possible to save worthwhile programs that were eliminated because of inadequate justification. Each review echelon issues appropriate instructions for reclama.

#### 4.2.5.5 Guidance

"Guidance" plays an important part in budget preparation. Guidance is both substantive and procedural, as described in the following paragraphs.

Procedural guidance has become increasingly important with the expanding use of automatic-data-processing equipment. Uniformity is absolutely essential if automatic data processing equipment is to be able to summarize submissions from diverse organizations.

For the most part, the means by which budget estimates are presented is directed by higher authority. Justification material is required by the Bureau of the Budget (BOB) but is used to support budget estimates at each review level. Budget schedules and narrative are required by BOB as a basis for preparation of the Appendix to the printed federal budget. Backup material is required by ASD (COMPT) as he prescribes. Annex material is required by NAVCOMPT. Budget Summary Table feeder data is required by NAVCOMPT for consolidation and publication and for use of Navy witnesses before Congress. These requirements are described in NAVCOMPT Instruction P7102.1, *Budget Submission Manual*.

Substantive guidance concerning overall budget amounts and particular programs is developed at all levels and issued to subordinate echelons. Guidance comes from the President and is based on various monetary and fiscal policy considerations as well as on assessment of the international situation. Broad guidance from higher levels is translated into increasingly specific guidelines at lower levels. Another source of guidance is the expressed and implied intent of the Congress as stated in previous hearings on the authorization and appropriation requests and in reports accompanying the bills reported out by the various Committees for prior-year and current-year budgets.

#### 4.2.6 Apportionment

One might assume that passage of the Appropriations Act, after a year and a half of justification, review, mark-up, and reclama would mark the end of the battle for the funds required to carry out the Navy's programs. Such is not the case. The process continues within the Navy as well as the OSD, Bureau of the Budget (BOB) and the Congress until funds are approved, released, and obligated, since changing needs and technology affect the relative value and priority of programs and projects. Even after the money has been spent, the process continues, in a sense, through audit.

Apportionment and allocation procedures are set forth in DoD Directive 7200.1 *Administrative Control of Appropriations Within the Department of Defense*, DoD Directive 7200.1 defines these terms as follows:

- **Apportionment** — A determination by the Director of the Bureau of the Budget regarding the amount of obligations which may be incurred during a specified period under an appropriation, contract authorization, other statutory authorizations, or a combination thereof, pursuant to Section 3679 of the Revised Statutes as amended (31 U.S.C. 665). An apportionment may relate either to all obligations to be incurred during the specified period within an appropriation account or to obligations to be incurred for an activity, function, project, object, or combination thereof.
- **Allocation** — An authorization by a designated official of a component of the Department of Defense making funds available within a prescribed amount to an operating agency for the purpose of making allotments.

Funds must be both apportioned and allocated before they are actually available for obligation and expenditure. The apportionment process dates back almost 100 years. Originally, expenditures were spread throughout the year to avoid the need for deficiency appropriations. Since passage of the Budget and Accounting Act of 1921, however, apportionment has also been used as a means of saving funds. The act authorized the President to establish "reserves" to effect savings or to provide for contingencies. The President often uses this authority to withhold funds appropriated by the Congress in excess of the amount requested in the President's budget.

- **Apportionment Request** — NAVCOMPT issues a format notice each year calling for the bureaus, systems commands, and offices, through their appropriation managers, to submit their apportionment programs and supporting backup material, including that prescribed in NAVCOMPT Instruction P7102.1. Usually, these inputs must be received by NAVCOMPT by 15 May to meet an OSD submission date of 1 June.

The bureaus, systems commands, and offices conduct a continuing review of their requirements to update their programs and to anticipate the effects of actions by the Congress as the budget hearings progress.

These reviews also include incorporation of the effects of PCR and reprogramming actions that are approved subsequent to submission of the budget to Congress. The bureaus, systems commands, and offices review apportionment programs in much the same way in which budget estimates are reviewed. The review and approval channels leading to submission of the apportionment program to OSD is the same as for budget estimates.

The formal apportionment request, DD Form 1105, is submitted by NAVCOMPT to the ASD Comptroller within three days after passage of the Appropriation Act, which in recent years has occurred after 1 July. When an appropriation is not enacted by 1 July, the Congress passes a joint resolution effective 1 July, pending final enactment of the appropriation, permitting Government agencies to obligate and expend funds for support of continuing functions and programs. It does not permit new programs to be initiated, because in its final action on the appropriation, the Congress may disapprove or reduce such proposed new programs. The joint resolution is in effect for one or two months and is extended by Congressional action, as appropriate. The authority is transmitted to the Military Departments by the ASD Comptroller. BOB Circular A-34 requires OSD to submit the DD Form 1105 within 15 days after passage of the Appropriation Act.

When the approved apportionment form is returned by BOB via ASD Comptroller, it indicates the total amount apportioned and identifies any amount withheld (apportionment reserve) by the BOB.

- **Budget Activity Allocations** — Budget activity allocations are an internal Navy control device, made in writing, and designed to ensure that appropriated funds are actually spent for the purposes for which justified before Congress, or that appropriate action is taken to clear changes with appropriate Congressional committees. Such changes in funding are called reprogramming actions. The aggregate of allocations issued within an appropriation will not exceed the amount of the approved apportionment.
- **Allotments and Suballotments** — Allocation makes funds available for allotment to operating agencies. Allotments and suballotments are authorizations to officials to incur obligations. DoD Directive 7200.1 prescribes that the heads of operating agencies shall make allotments in specific amounts, in writing, to the heads of installations or other organizational units. Units receiving allotments may then make them available through suballotments to their own subordinate organizations or to other agencies. Allotments may not be issued in excess of the amount of allocation for a specified period.
- **Obligation and Expenditure of Funds** — The process of apportionment, allocation, and allotment extends the authority to obligate funds down through the organization. That is, it makes it possible to issue orders, make contracts, or otherwise establish an obligation for an eventual expenditure. Obligation authority and program approval are the tools by which the budget is controlled.

#### **4.2.7 Execution of the Budget**

##### **4.2.7.1 The Program Funding Cycle**

To reduce administrative lead time on procurements and to allow early initiation of fiscal year expenditure preparations by field stations, NAVAIR publishes each year in November a Chart of Accounts for the ensuing fiscal year. This document assigns Intra-Command Allotment Numbers and defines Management Cost Codes, thus establishing



the accounting structure necessary to track each expenditure item. Allotment Numbers are assigned to the Project Managers and the Operating Groups (e.g., AIR-04 and AIR-05), who prepare detailed procurement documents that are used for planning purposes only.

In January, the Financial Management Division issues Planning Allocations in accordance with the Chart of Accounts, based on the President's Budget. After passage of the Appropriation Act and apportionment of funds, the Financial Management Division adjusts the Planning Allocations to reflect Congressional action on the appropriation request, or OSD/BOB action on the apportionment. Project Managers and Operating Groups then must modify all planning documents to reflect the adjusted fund amounts.

Funds allocated by the Comptroller to the operating Assistant Commanders, using the intra-Command allotment code, are considered to be allocated, directed, and intra-Command allotted as one action in the financial management accounting and reporting system. In other words, by a single action the Assistant Commanders are given full control over their share of the apportioned funds, and assume responsibility for accounting and reporting on expenditures of their operating groups.

Detailed information on the foregoing procedures is contained in the following documents:

NAVAIRINST 7130.2A	<i>Program Execution and Funding Cycle; Promulgation of</i>
NAVAIRINST 7130.5	<i>Intra-Command Allotment System; Procedures for</i>
NAVAIRNOTE 7130	<i>Chart of Accounts for Fiscal Year 1971</i>

#### 4.2.7.2 Cost Classification

In Section 4.5.2, the principal subdivisions of the Appropriation Act were listed by title. Funds administered by NAVAIR are related to Appropriate Act titles as follows:

Title II:	Operation and Maintenance, Navy (OMN)
Title III:	(a) Procurement of Aircraft and Missiles, Navy (PAMN)
	(b) Other Procurement, Navy (OPN)
Title IV:	Research, Development, Test, and Evaluation, Navy (RDT&EN)

All costs are classified either as investment, expense, or research and development costs as defined below:

- Investments are the cost of real property and equipment. The procurement appropriations (PAMN and OPN) finance only investment costs.
- Expenses are the cost of resources consumed in use. The O&MN appropriation finances only expenses.
- Research and development costs are financed by the RDT&EN appropriation. The RDT&EN appropriation finances both expenses and investment costs in direct support of research and development.

A more detailed definition of investment and expense costs is contained in NAVAIRINST 7040.7. RDT&EN costs are defined in NAVAIRINST 7044.1. PAMN costs are defined in NAVAIRINST 7043.

#### 4.2.7.3 Appropriation Structure

Each appropriation is subdivided into Budget Activities. Administration of the RDT&EN appropriation is handled by AIR-03, AIR-05, and the Project Managers. Management of RDT&EN is a specialty in itself, and is treated in NAVSO P-2457, *Department of the Navy RDT&E Management Guide*. Administration of the other NAVAIR appropriations are the responsibility of AIR-04. The structure of these appropriations, the division of responsibilities, and the flow of funds in AIR-04 Divisions are as follows:\*

#### OTHER PROCUREMENT, NAVY (OPN)

##### I. General Definition

The OPN appropriation provides for the procurement, production, and modernization of support equipment (not to be confused with GSE) and materials not otherwise provided for in the major procurement appropriations (e.g., PAMN).

##### II. Budget Activities

1. Ship Support Equipment
2. Comm. & Elex. Equipment
3. Aviation Support Equipment
4. Ordnance Support Equipment
5. Civil Engineering Support Equipment
6. Supply Support Equipment
7. Personnel and Command Support Equipment

##### III. NAVAIR Responsibilities

In the OPN appropriation, NAVAIR has administrative responsibility for budget activity 3, Aviation Support Equipment, which in FY 70, amounts approximately to \$636.7 million against a total OPN budget of \$2.066 billion. Of this NAVAIR portion, AIR-04 is responsible for approximately \$34.8 million, which includes such programs as Weapons Range Support Equipment, Calibration, Industrial Plant Equipment, and others. The overall Financial Management for NAVAIR OPN funds is the responsibility of AIR-05.

##### IV. Flow of Funds

OPN funds are allocated by AIR-102 to the line item sponsors who further allocate to the procuring activity by work requests, project orders, allotments, requisitions, procurement requests, and MIPRs.

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\*Quoted from memo AIR-402213:JAC, 26 November 1969.

## **PROCUREMENT OF AIRCRAFT AND MISSILES, NAVY (PAMN)**

### **I. General Definition**

PAMN finances the cost of procurement of aircraft and missiles and equipment for installation in new aircraft and missiles and associated supporting equipment for the Navy and Marine Corps. It also provides for necessary safety-of-flight and operational modifications to service aircraft as well as the procurement of drones, flight training simulators, and maintenance trainers. It also finances spares and repair parts meeting investment criteria, industrial facilities, and other production charges.

### **II. Budget Activities**

1. Combat A/C\*
2. Airlift A/C\*
3. Trainer A/C\*
4. Other A/C\*
5. Modification of A/C
6. A/C Spares & Repair Parts\*
7. A/C Support Equipment & Facilities\*
8. Ballistic Missiles
9. Other Missiles
10. Modification of Missiles
11. Missile Spares & Repair Parts
12. Missile Support Equipment & Facilities\*

### **III. NAVAIR Responsibilities**

NAVAIRSYSCOM Headquarters has overall responsibility for the administration of the PAMN appropriation. The Financial Management responsibilities are assigned specifically to AIR-05. AIR-04 (AIR-412) has direct program and financial responsibility for budget activities No. 6 (A/C Spares and Repair Parts) and No. 11 (Missile Spares and Repair Parts). Out of a total PAMN budget of approximately \$3,208.2 million for FY 70, these two activities account for \$606.3 million. AIR-04 also has indirect responsibilities in budget activities one through five and seven, specifically involving the areas of training, publications, and engineering technical services and amounting to approximately \$141.3 million. In these activities, AIR-04 has more of a coordinating role; e.g., the provision of price estimates and justification of requirements for budget submissions.

### **IV. Flow of Funds**

In the PAMN appropriation, the flow of funds varies according to budget activity. For example, in activities 1-4, 8, 9, 11, 12 funds are apportioned to the project/program managers who direct the money on project directives to AIR-05. Action is then taken by AIR-04 through the processing of funding documents; e.g., procurement requests, requisitions, project orders, allotments, work requests, and MIPRs. In activity No. 6, funds are allocated by AIR-102 and directed by AIR-412.

\*Denotes activities that are concerned with GSE.



## **OPERATIONS AND MAINTENANCE, NAVY (O&MN)**

### **I. General Definition**

O&MN basically covers expense-type costs in connection with day-to-day Navy operations for which other provision has not been made; e.g., civilian salaries, benefits, travel, printing and reproduction, services of industrial funded activities, supplies, material and equipment. These expense-type costs differentiate from investment costs by their consumption on an annual basis.

### **II. Budget Activities**

1. Operating Forces
2. Logistics Support
3. Medical Support
4. Training & Military Personnel Support
5. Naval Reserve
6. Servicewide Operations
7. Petroleum Reserves

### **III. NAVAIR Responsibilities**

AIR-04 is the financial manager of the entire NAVAIR portion of the O&MN budget activity No. 2 Logistics Support. According to the latest planning estimates, this amounts to approximately \$911 million for FY 70 against a total budgeted amount of \$2,065.9 million for Logistics Support. Basic responsibilities include preparation and justification of budget material for all levels of review, and control of the allocation of resources for the funding of NAVAIR programs.

### **IV. Flow of Funds**

AIR-402 allocates O&MN resources to the cognizant program coordinators who, in turn, prepare an expense operating budget for field activities or a POAR for other programs requesting funding authorization from AIR-102. After verifying the availability of funds, AIR-102 approves the EOB or issues a Project Order or Work Request to the program manager approving the requested funds."

#### **4.2.7.4 Reprogramming**

One of the principal functions of the manager is to make trade-offs between programs and projects. In the interests of maximum effectiveness, changes must often be made in the application of budgeted resources, since plans may be as much as 18 months old when they are actually implemented.

While management effectiveness may demand that funds be spent for purposes other than those originally planned to achieve a greater contribution to military worth, funds must be spent for substantially the same purposes for which they were justified to the Congressional committees.

DoD Directive 7250.5, *Reprogramming of Appropriated Funds*, is a statement of the major policies of the Department of Defense on reprogramming of appropriated funds.

Reprogramming measures, developed in consultation with the Committees and set forth in DoD Directive 7250.5 and others, provide a firm basis for retention of Congressional control over the use of Defense appropriations by assuring that the intent of Congress is carried out while providing a device for achieving flexibility in the execution of Defense programs.

DoD Instruction 7250.10 (NAVCOMPT 7133.1) *Implementation of Reprogramming of Appropriated Funds* prescribes the procedures for such reprogramming.

**Reprogramming Procedures.** Each request for reprogramming approval (DD Form 1415) includes a concise statement of the need for the reprogramming. This statement must contain all the details required by reviewing authorities and Congressional Committees to understand the actions proposed. The actions must identify all compensating increases and decreases within the appropriation total so that the net effect is zero for the individual reprogramming proposal. This does not apply when the reprogramming involves a transfer of funds into or out of the appropriation. Such a difference would show up as a net change in the appropriation total. An example would be a transfer from OSD Emergency Funds.

**Reprogramming Hearings.** Periodically, reprogramming hearings are conducted by Congressional Committees. The House Appropriations Committee conducts formal closed hearings, while the Senate Appropriations Committee usually does not hold hearings unless the reprogramming includes an item of particular interest to the committee.

Congressional approval is not necessary for every reprogramming action. Criteria have been established to allow reprogramming at various levels within the DoD, subject to rigidly defined restrictions that are intended to ensure that the intent of Congress is not violated. Threshold limitations on amounts that may be reprogrammed without higher approval have also been established. NAVAIRINST 7130.3 sets forth the restrictions and limitations applicable to reprogramming by NAVAIR.

#### 4.2.8 Audits and Review

Programming, reprogramming, and accounting controls are supplemented by periodic audits and reviews conducted by certain offices inside and outside the Navy. The nature and scope of these activities are described below.

**The General Accounting Office.** The Budget and Accounting Act of 1921 established the General Accounting Office headed by a Comptroller General. The GAO is an agency of the Congress, completely independent of the Executive Branch. The Comptroller General investigates all matters relating to the receipt, disbursement, and application of public funds. He makes an annual report to the Congress and submits special reports when necessary. In these reports he makes "recommendations looking to greater economy or efficiency in public expenditures."

Formerly, GAO audits focused on accounting matters, particularly whether expenditures were in accordance with the law and intent of Congress. In recent times, however, emphasis has been on the question of how efficiently, effectively, and economically government business is being conducted.

**Internal Audit.** Title IV of the National Security Act amendments of 1949, which established the office of Comptroller of the Department of Defense and within the Services,

established internal auditing as a function of those offices. In the office of the Comptroller of the Department of Defense, there is an Assistant Comptroller for Audit. In the Department of the Navy, the Comptroller is responsible for auditing. Such audit functions are performed by the Auditor General of the Navy.

The Navy audit program encompasses two distinct types of audit — internal and contract. Internal audit is the independent appraisal of accounting, financial, and related matters of an operating nature. It is concerned both with detecting the kinds of deficiencies that would be of interest to an external auditor — GAO, for example — and with providing management with the information necessary to improve economy and effectiveness of operations. In short, internal audit is designed to provide both protective and constructive services.

Contract audit involves the examination of books and records of private contractors and verification of their cost representations insofar as work with the Navy is concerned. Contract audit also provides contracting officers with advice useful to them in negotiating contract prices. Both internal and contract audit are under the Auditor General of the Navy.

#### 4.2.9 AIR-417 Activities

All AIR-417 Branches are responsible for submitting, in a timely manner, back-up data to support GSE budget justifications for the PAM,N, OPN, and O&M,N programs as follows:

##### a. PAMN

##### Activities 1 through 5

The Ground Support Equipment Logistics Division will utilize these activities and the AIR-534 inputs thereto as a basis for computation of data for budget activity 6.

##### Activity 6 -- Spares and Repair Parts

The cognizant branches of the Ground Support Logistics Division will provide budget back-up information for initial spares and repair parts to support the "VAST SPARES" line item and the "GROUND SUPPORT EQUIPMENT SPARES" line item. This back-up data will be submitted to a central budget control desk (AIR-41713A) for consolidation, standardization and processing to the appropriate budget office in AIR-04.

Budget back-up information for initial spares and repair parts for Peculiar Ground Support Equipment will be provided to AIR-412 by AIR-4171 in the format shown in Figure 4-8. This information will be developed in conjunction with budget activities 1 through 5 inputs received from AIR-534.

Inventory Control Points (ASO and SPCC) will provide replenishment budget back-up data for Ground Support Equipment directly to AIR-412. AIR-417 Branches will maintain liaison with the Inventory Control Points (ICPs) to assure that adequate funding requirements for GSE are included in the replenishment budget submission. Upon approval and release of the replenishment funds, AIR-412 will allocate funds to the appropriate ICPs. The cognizant AIR-417 desk will maintain liaison with inventory managers at the ICPs to ensure that procurements are made in a timely manner and to preclude the necessity for reprogramming of unobligated funds due to inadequate procurement practices.



GSE Logistics Division  
(AIR-417)

Dated:

**AIRCRAFT PRICE-OUT  
PGSE SPARE END ITEMS AND  
REPAIR PARTS**

(Add ltr ref):

A/C or System:

	FY _____	FY _____	FY _____	FY _____	FY _____
PGSE End Item (Recurring Cost)	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____
Spare End Item Cost	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____
Repair Parts Cost	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____
Total	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____

**Steps to Price-Out PGSE Spares and Repair Parts**

1. Obtain latest GSE end item recurring cost from AIR-534 for individual A/C or system being priced out.
2. Compute spare end item cost by multiplying FY recurring cost by 10 percent.
3. Compute repair parts cost by multiplying FY recurring cost by 6 percent and slip to the next year.

Example	FY 1971	FY 1972	FY 1973
PGSE End Item Cost	\$1,000	\$1,000	-0-
PGSE Spare End Item Cost (10%)	100	100	-0-
PGSE Repair Parts (6%)	-0-	60	60

**Figure 4-8. BUDGET BACK-UP INFORMATION ON INITIAL SPARES  
AND REPAIR PARTS FOR PGSE**

#### Activity 7 — Support Equipment and Facilities (not related to an aircraft)

AIR-4171 is responsible for the development, submission, and justification of technical requirements for the following ground support equipment items:

- Aircraft Tow Equipment (Shorebased)
- Carrier Tractors MD-3
- Propulsion Support Equipment
- Weapons Packaging and Handling Equipment
- Electrical Servicing Equipment
- Fluid Servicing Equipment
- Miscellaneous Aircraft Support Equipment

AIR-4171 will provide quantitative requirements in the form of "detail requirement justification sheets" in the format shown in Figure 4-9 for the above equipment.

The AIR-4171 commodity managers will maintain adequate inventory records in order to provide justifications for allowance quantities, on-hand quantities, and on-order quantities. This information is necessary to support current and future year budget estimates. Requirement justification sheets will be provided, upon request, to AIR-534, via AIR-41713A.

AIR-41713A will maintain liaison with AIR-534 throughout the budget cycle and inform commodity managers and other concerned division personnel of all budget and funding decisions or changes in the program.

AIR-534 in conjunction with AIR-417 will approve and fund modifications for the purpose of improvement/updating of GSE. When a requirement for modification of ground support equipment is generated as a direct result of aircraft/weapon system modification, AIR-534 and AIR-417 will review and approve the GSE modification with the understanding that funds will be provided in the Aircraft Modification Program.

#### b. OPN

For FY 1971, AIR-4171 will provide requirements justification sheets in the format shown in Figure 4-9 to support the Section "M" OPN line item.

The AIR-4171 commodity manager will maintain adequate inventory records in order to provide justifications for allowance quantities, on-hand quantities, and on-order quantities. This information is necessary to support current and future year budget estimates.

AIR-4171 will maintain liaison with the inventory managers at the ICPs to make sure investment and replenishment parts are procured in a timely manner. AIR-4171 will assist in the budget reviews at the Inventory Control Points.

In FY 72 and subsequent, these responsibilities will be transferred into the PAM,N area or other commands and will no longer be the responsibility of the GSE Logistics Division.

# BUDGET REQUIREMENTS JUSTIFICATION

AIR-534

F.Y. 1972

## CHARACTERISTICS

1. NOMENCLATURE:
2. PART OF: (Basic Equipment or Unit, if any):
3. PART NO.:
4. FSN NO.:
5. MODEL NO.:
6. SERVICE LIFE (Years):  
(Give Authority or Criteria)
7. UNIT COST:

## DESCRIPTIVE INFORMATION

(Clarification Statement, Descriptive Info, Sketch/Photo, etc.)

Figure 4-9. JUSTIFICATION FOR BUDGET REQUIREMENTS (Sheet 1)



1. BASIS OF ALLOWANCE/REQUIREMENTS  
(Show Calculation in Detail):

BASIC ALLOWANCES/REQUIREMENTS

Page 2

---

INVENTORY INFORMATION

1. ON HAND/ON ORDER/APPROVED FOR PROCUREMENT, THROUGH FY 1970:

2. NO. TO BE PROCURED DURING FY 1971:

3. TOTAL PROJECTED INVENTORY (Add Line 1 and Line 2 Above):

4. TOTAL OVERAGE AT BEGINNING OF FY 1971:

5. NO. GOING OVERAGE DURING FY 1971:

6. NO. GOING OVERAGE DURING FY 1971:

7. TOTAL OVERAGE REQUIREMENTS  
(Add Lines 4, 5, and 6):

8. TOTAL INVENTORY, END OF FY 1972  
(Line 3 Minus Line 7):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

---

BUDGET REQUIREMENTS (BUDGET YEAR)

1. TOTAL UNITS REQUIRED:

2. TOTAL PROJECTED INVENTORY  
AS OF END FY 1972

3. GROSS BUDGET REQUIREMENTS  
(Line 2 Minus Line 2):

4. FY 1972 BUDGET INPUT:

5. REMAINING BUDGET REQUIREMENTS:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

FY 1972 (Basic Item): \$ \_\_\_\_\_ x \_\_\_\_\_ = \$ \_\_\_\_\_

(Add) Training: \_\_\_\_\_

Publications: \_\_\_\_\_

Spares: \_\_\_\_\_

FY 1972 TOTAL COST: \$ \_\_\_\_\_

Unbudgeted (Total): \$ \_\_\_\_\_ x \_\_\_\_\_ = \$ \_\_\_\_\_

---

BUDGET REQUIREMENTS, FIVE YEAR DEFENSE PLAN (FYDP) (Amount in Thousands)

FY 1971 QTY/AMT	FY 1972 QTY/AMT	FY 1973 QTY/AMT	FY 1974 QTY/AMT	FY 1975 QTY/AMT	FY 1976 QTY/AMT

Figure 4-9. JUSTIFICATION FOR BUDGET REQUIREMENTS (Sheet 2)

# EQUIPMENT STATUS REPORT

ITEM NOMENCLATURE \_\_\_\_\_

## EVALUATION PROGRAM

WHERE \_\_\_\_\_

WHEN \_\_\_\_\_

RESULTS \_\_\_\_\_

## PROCUREMENT STATUS

- a. Are specs available? Yes \_\_\_\_ No \_\_\_\_ Is it a performance ( ) Spec or Detailed ( ) Spec?
- b. If not now available, when will specs be ready? \_\_\_\_\_
- c. Do you anticipate any spec changes prior to next procurement? Yes \_\_\_\_ No \_\_\_\_
- d. If Yes, when will the changes be accomplished? Date: \_\_\_\_\_
- e. Are drawings available? Yes \_\_\_\_ No \_\_\_\_ If not, when will they be ready? \_\_\_\_\_
- f. Do you anticipate any drawings changes prior to next procurement? Yes \_\_\_\_ No \_\_\_\_
- g. If yes, when will the changes be accomplished? \_\_\_\_\_
- h. If this item has been procured in the past, are you/have you had production problems? No \_\_\_\_ Yes \_\_\_\_
- i. Do you anticipate any logistics problems with this equipment - i.e., specialized training, spares?  
Yes \_\_\_\_ No \_\_\_\_ If yes, explain: \_\_\_\_\_

Figure 4-9. JUSTIFICATION FOR BUDGET REQUIREMENTS (Sheet 3)

c. O&M,N

The following Branches in AIR-417 will be responsible for providing budget and funding data in the format shown in Figure 4-10 to support the below listed O&M,N line items.

Line Item Description	Responsible Branch
BACE/SACE	AIR-4172
General Equipment	AIR-4171
VAST Maintenance	AIR-4172
AMD Shop Rearrangement	AIR-4172
Weapons Ground Support Equipment	AIR-4172
Ground Support Equipment	
a. GSED (Acquisition)	AIR-5341
b. GSED (Logistics)	AIR-4171

The above ground Support Equipment line item will be a joint effort between AIR-417 and AIR-534, with AIR-534 having the responsibility to consolidate the AIR-417/534 budget data into one report and forward the combined report to AIR-402.

AIR-41713A will prepare a monthly financial report for the O&M,N line items in the format shown in Figure 4-11. This report will be forwarded no later than the 10th working day of each month, to AIR-417 with copies to AIR-417A, AIR-4171, AIR-4172, and AIR-4173.

d. As policy, all budget justifications and financial estimates sent out of the Division will be covered by signed memorandum, and routed through AIR-41713 who will maintain complete budget/financial records for the Division. It is the responsibility of the individual APML to keep informed of all budget and financial transactions applicable to his assigned programs.

The forms shown in Figures 4-8, 4-9, and 4-10 will be used as appropriate by all branches as required to carry out the action above. Copies of all budget/financial reports generated within AIR-417 will be provided to and retained by AIR-41713A.

#### 4.3 MAINTENANCE ENGINEERING

Maintenance Engineering is defined by NAVAIRINST 4700.2 as "The function of providing policy guidance to maintenance activities for the purpose of exercising technical and management review for effective maintenance programs." Additionally, "The application of techniques, engineering skills and effort, organized to ensure the design and development of weapon systems and equipments to provide adequately for their effective and economical maintenance." This section covers those functions involved in maintenance engineering applied during the design and development phases of weapon systems.



# O&MN BUDGET FORMAT

FY:  
Prepared by:  
Date:

FY 19 \_\_\_\_  
Estimate  
(Future Year)

FY 19 \_\_\_\_  
Estimate  
(Current Year)

FY 19 \_\_\_\_  
Actual  
(Prior Year)

Title of Program:  
i.e. (General Equipment)

Background Information:  
i.e. (Explain the purpose  
of the program)

Detail Computation of Requirements  
i.e. (Repair costs are required for  
80 tractors and 50 spotting dollies  
at an overhaul cost of \$2,000)

Rationale, Methodology for Computing  
Funding Requirements  
i.e. (Explain how funds were computed -  
10% of the inventory value of the equip-  
ment. There are 80 tractors and 50  
spotting dollies on hand)

Justification  
i.e. (List any/all references/source  
documents that support this requirement)

Figure 4-10. FORM FOR USE IN DETAILING O&MN FUNDING DATA

# AIR-417 MONTHLY FINANCIAL STATUS REPORT

O&MN FY \_\_\_\_\_

as of \_\_\_\_\_

Current Allocation	Documents Processed Through AIR-417 (Not Yet Commit.)	Committed - AIR-1022 Records	Obligated - AIR-1022 Records	Expended - AIR-1022 Records	Available Balance	%	Actual Expenditures
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SACE/BACE

VAST

Gen. Equip.

Wpn Grd. Support Equip.

AMD Shop Rearrangement

Ground Support Equipment Logistics (04)

(1) VAST Support (04)

Figure 4-11. MONTHLY FINANCIAL REPORT FOR O&M,N LINE ITEMS

### 4.3.1 Maintainability

#### 4.3.1.1 Identifying Maintainability

##### 4.3.1.1.1 Background

Maintainability, when properly utilized with associated disciplines, results in optimum system availability. The concept of maintainability has also developed into a body of knowledge which can result in equipment designs which greatly enhance the repair effort and reduce downtime.

Maintainability must be evaluated in terms of total cost of system ownership. For example, increases in maintainability of a system can increase the acquisition cost of the equipment, or decrease the reliability. Trade-offs must be made early to establish optimum maintainability goals. Trade-offs will be discussed in detail in the following sections.

Maintainability is defined as: "A characteristic of design and installation which is expressed as the probability that an item will be retained in or restored to a specified condition within a given period of time, when the maintenance is performed in accordance with prescribed procedures and resources."\*

MIL-HDBK-472 (*Maintainability Prediction*) provides maintainability-related information and guidance for personnel concerned with the design, development, and production of equipment and systems. Four prediction procedures are detailed in MIL-HDBK-472. Procedure I is applicable to flight line maintenance of modular electronic systems. Procedure II is applicable to ship- and shore-installed electronic systems. Procedure III is for use with Air Force ground electronic systems. Procedure IV applies to all types of systems.

Two standards relate specifically to maintainability. The first, MIL-STD-470, *Maintainability Program Requirements (For Systems and Equipments)*, describes the factors that comprise a maintainability program during procurement. More definitive information on the conduct of maintainability demonstrations is contained in MIL-STD-471, (*Maintainability Demonstration*) which includes techniques for the quantification of factors in probabilistic terms.

##### 4.3.1.1.2 Factors Comprising Maintainability

This section describes those actions that affect repair (corrective maintenance), and those that prevent failure (preventive maintenance).

**Corrective Maintenance.** Corrective Maintenance is defined as "The actions performed as a result of failure, to restore an item to a specified condition."\* In design, several aspects of corrective maintenance such as fault detection, fault isolation, and repair and checkout (retest) must be considered.

Fault Detection consists of determining that there has been a failure, (e.g. engine misses, improper display or input). Usually, initial fault detection is accomplished by the operator and reported to maintenance personnel.

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\*MIL-STD-721B, 1966.



Fault isolation is the determination of the actual cause of the failure. This is often the most difficult and time-consuming part of the maintenance task, requiring the highest technical skill in the maintenance cycle.

**Preventive Maintenance.** Preventive Maintenance is defined as "The actions performed in an attempt to retain an item in a specified condition by providing systematic inspection, detection, and prevention of incipient failure."\* This type of maintenance includes calendar periodic-inspection, tear-down overhaul, or calibration. For vehicles or other mechanical equipment, preventive maintenance might include greasing or oil changes; for electronic equipment it might include automatic self-test, etc.

#### 4.3.1.1.3 Associated Factors

**Maintenance Environment.** It is important to identify the environmental factors that affect the time required to complete a repair. The basic quantifier for maintainability is Mean-Time-To-Repair (MTTR), which is defined as "The total corrective maintenance time divided by the total number of corrective maintenance actions during a given period of time."\* This definition presumes that the maintenance is accomplished in a given environment, by a nearly optimum number of properly qualified maintenance personnel, employing proper tools in a reasonably efficient manner. Use of the proper tools implies that suitable test equipment is accessible, and that sufficient spare parts (or assemblies) are available. Therefore, to quantify maintainability, the maintenance environment must be identified, even though it is difficult to associate specific quantities with many of the variables.

Although difficulties do exist, it is possible to specify maintainability for a system that is being designed. Such specifications are based on experience with earlier, similar equipments.

The repair environment must be described in general terms. It might, for example, include availability at all times of two maintenance men of level E-5, who have at least four months of formal classroom training on the system, and have available to them specified operating test equipment and serviceable spare parts or subassemblies in recommended quantities. In such an environment (which must be considered ideal), it is possible to specify that the mean repair time will not exceed a given value (15 minutes for the equipment or 30 man-minutes, etc.).

While equipment is still in the conceptual stage, it is thus possible to establish maintainability criteria for the system. This makes it necessary for the designer to consider the aspects of maintenance in his initial considerations. (In the case of electronic devices, this will have a profound impact on the packaging of functional modules or subassemblies that are not otherwise controlled by design or reliability specifications.)

**Availability and Reliability.** Availability is "A measure of the degree to which an item is in the operable and committable state at the start of the mission, when the mission is called for at an unknown (random) point in time."\* Availability of GSE is vital to system availability, whether the GSE is used for repair or test of the system.

System reliability is so significant that it is treated as a separate Section (4.3.2). It is mentioned here only to establish its relationship to maintainability.

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\*MIL-STD-721B

Reliability is "The probability that an item will perform its intended function for a specified interval under stated conditions."\* Both reliability and maintainability are factors that directly affect system availability. The more reliable (the longer a system will probably run before failure) and the greater its maintainability (the more likely the system can be repaired in a short time) the greater the system availability. Ideally, reliability would be 100 percent (no failures, making it unnecessary to consider maintainability at all.) However, it is not possible within the state of the art to design a perfectly reliable system. Therefore, to attain a system with reasonable availability, design trade-offs must be made between reliability and maintainability.

For an electronic system, each additional wire, connection, and passive or active component reduces reliability. The most reliable system will contain no extra wires, switches, etc. However, when the system does fail, some test points are necessary for rapid isolation of the fault, especially where microcircuits are involved. For more sophisticated systems, it is desirable to add complex self-test modes, even though test circuits greatly increase the number of components and thereby reduce the inherent reliability.

The "break even" point for maintainability versus reliability has never been defined, and has thus far been evaluated on a system-by-system basis. The trade-offs are accomplished by design teams (government and industry reliability and logistics engineers) on the basis of previous experience with similar equipments. Often, the final choice can be made by applying prediction methods.

**Human Factors and Safety.** Human Factors is: "A body of scientific facts about human characteristics. The term covers all biomedical and psychosocial considerations: it includes, but is not limited to, principles and applications in the areas of human engineering, personnel selection, training, life support, job performance aids, and human performance evaluation."\* The human-factors aspects of equipment considers physical space requirements and the movements and motions that are reasonably convenient for human beings. Human factors considerations also include temperature, pressure, humidity, and the noise-level environment. It relates this to normal or probable human responses to given conditions, and accordingly, defines equipment characteristics that will be most compatible for the human operator. Human factors attempts to identify the optimum equipment response which will allow rapid and unambiguous interpretation by the operator, thereby reducing human error. These concepts must be applied to the design of GSE, since operator interface is as critical for these equipments as for any others. Misinterpretation of an indication on a GSE indicator can result in the unnecessary expenditure of maintenance man-hours, and the tying up of prime equipment, thus reducing availability of both the end article and the support equipment.

MIL-STD-1472, *Human Engineering Design Criteria for Military Systems, Equipment and Facilities*, identifies most of the factors associated with human factors and contains the general requirements of design.

In addition, Military Specification MIL-H-46855, *Human Engineering Requirements for Military Systems Equipment and Facilities*, is a guide to requirements for human factors considerations.

Safety is "The conservation of human life and its effectiveness and the prevention of damage to items, consistent with mission requirements."\* This definition encompasses many concepts. Section 5.13 of MIL-STD-1472, "Hazards and Safety," is a general guide for

\*MIL-STD-721B

accident prevention. Requirement 1 of MIL-STD-454B, *General Requirements for Electronic Equipment*, contains specific safety standards for electronic equipments and describes methods of establishing safe procedures.

In the case of new equipment acquisition, MIL-S-38130A, *General Requirements for System Safety Engineering of Systems and Associated Subsystems and Equipment*, must be applied to the contractual efforts, since this is a mandatory specification for all departments and agencies of DoD.

#### **4.3.1.2 AIR-04 Responsibility**

The Logistic Fleet Support Group is responsible for assuring that all aeronautical systems and equipment, including GSE, has adequate logistic support when it enters the Navy operational inventory, and thereafter.

The maintenance philosophy for GSE must be established at the time of procurement, and must include consideration of maintainability requirements. Maintainability requirements are usually specified by assigning a mean time to repair (MTTR) value. The MTTR specification must state a unit of time and the environment in which maintenance will be accomplished. This is not always a simple task, and if it is to be properly performed, requires analysis of the entire situation.

The specification of MTTR is usually stated in terms of the mean time, (e.g., 30 minutes). However, this information does not exclude the possibility of many extremely long repair times, offset about the mean value by some extremely short times. Therefore, the maximum repair time is often stated as a specification also. The maximum time is defined as that value of elapsed repair time which includes 95 percent of the repair actions. A log-normal curve closely resembles the repair time distributions. This being so, it could generally be expected that the maximum repair time (as defined) would be in the range of twice the mean repair time (near 60 minutes). Both numbers should appear in the system specification to assure that the system being procured does not require abnormal conditions for its maintenance.

The GSE APM(L) in AIR-04 coordinates with the AIR-534 office to assure that all necessary maintainability specifications are incorporated in any procurement contract involving GSE. The specifications will vary widely, depending on the type of equipment being considered. Section 4.3.1.1 presents a general discussion of the specifications pertaining to maintainability.

#### **4.3.2 Reliability**

##### **4.3.2.1 Background**

Shortly after World War II, it was observed that some complex equipments were failing repeatedly, while other, similar equipments seemed better able to perform their intended function although both were able to do the job when they were operable. Review of the functional specifications that were applicable at the time of design did not show the reason for the difference, since working equipments met the functional requirements. As a result, studies of equipment reliability were undertaken and reliability specifications were developed.

Reliability is defined as: "The probability that an item will perform its intended function for a specified interval under stated conditions".\*

\*MIL-STD-721B



#### 4.3.2.1.1 Reliability as a Design Parameter

Equipment can be designed with "inherent reliability", but this reliability must be incorporated during the design phase if system life-cycle costs are to be optimized. The design engineer begins the reliability design procedure with a specific reliability goal expressed as a probability of operating successfully for some period of time. In choosing a design that will achieve this requirement, he must be constantly alert to any detrimental effects that a selected design alternative may have on the system's capability to perform its function reliably.

Reliability is generally affected by three factors: the number of components involved, the quality of the components selected, and the environment to which the components will be exposed. The designer must weigh these factors along with cost factors.

Each new system requires separate evaluation. In some cases, the number of components can not be reduced, in others, the environment is unchangeable. At times, the price increment for the next-higher-quality component is prohibitive. However, for each system there will be some optimum reliability configuration, and it is the task of the equipment designer, guided by the reliability group, to determine the most appropriate solution.

#### 4.3.2.1.2 Reliability Program Plans

The purpose of a reliability program is to assure that the reliability goal established for the equipment is being achieved as the program progresses. Reliability program requirements are detailed in MIL-STD-785, *Requirements for Reliability Program (for Systems and Equipments)*.

MIL-STD-785 describes the elements that are associated with a contractor's reliability program. The contractor's program plan must describe such items as the anticipated organization, management, and control. It must also include the schedule for reviews, testing, development of a reliability model, and a discussion of prediction and demonstration efforts.

#### 4.3.2.1.3 Reliability Demonstration Programs

The purpose of the reliability demonstration is to assure that the reliability requirements established for the equipment are actually being attained. The demonstration should be conducted to show that the equipment will perform reliably under some of the worst environmental conditions that the equipment is expected to experience.

A note of caution must be interjected here. If a reliability goal of 1000 hours has been set, the unit (say an amplifier) is expected to operate for 1000 hours — on the average — before failure. Since it may not be reasonable or desirable to operate a single unit for 1000 hours (three shifts a day for six weeks), the tendency is to operate a group of new units so that their aggregate accrued operating time is that required for the test. However, operating 1000 new amplifiers for one hour is not comparable to operating one amplifier for 1000 hours. If one failure is experienced in either of these cases, the calculated MTBF is 1000 hours. Although the results of both tests appear to be the same, they were obtained by substantially different methods — an important consideration for those responsible for establishing and monitoring program plans and specifying requirements.

#### **4.3.2.2 GSE Reliability: Impact of**

The amount of inherent reliability in a system will affect many other elements not normally considered to be directly related to system reliability. These include replacement spares, maintenance, training, publications, and facilities, each of which is discussed in the following paragraphs.

##### **4.3.2.2.1 Cost of Spares and Repairs Parts**

Initial spares provisioning for new items of GSE (before actual usage rates can be established) is based, among other factors, on the projected failure rate. The failure and usage rates of an equipment provide an indication of the rate at which spares and repair parts will be required. With this information and knowledge of the projected deployment of the equipment, an estimate can be made of the total budgetary requirements for spares and repair parts. When actual usage rates have been established, they are used as the basis for procuring spares and repair parts.

Reliability, therefore, plays an important part in the life-cycle costs of spares and repair parts. The greater the designed reliability for GSE, the less the total life-cycle cost for spares and repair parts.

##### **4.3.2.2.2 Cost of Maintenance and Training**

Maintenance requirements are also reduced as reliability improves. If the system seldom experiences a failure, the maintenance shops at all levels may be staffed by fewer technicians. The savings that result from a reduction in the maintenance are difficult to quantify; however, such savings spread over the life span of the system can be substantial.

When system reliability is high, fewer technicians are needed at each repair level. Consequently, direct training costs for student and instructor time and overhead costs for training facilities are lower. If the number of training courses can be reduced by improving system reliability, the amount of system downtime and, ultimately, the number of technicians required to maintain the system can also be reduced. Over the life of a system such savings can be substantial.

##### **4.3.2.2.3 Cost of Facilities**

The number of repair facilities also can be reduced in proportion to system reliability. If a new system contains units with high failure rates, a large repair shop will be required to house the necessary test equipment, tools, and personnel required to keep the failed units in serviceable condition. By contrast, a highly reliable system generally requires less space and facilities to keep it in repair.

##### **4.3.2.3 Specifying and Implementing Requirements**

It is the responsibility of the APM(L) to stipulate in the maintenance plan the desired level of reliability for a new equipment. If reliability requirements too are stringent, the result will be unnecessary expenditures of funds during design and manufacture of the equipment. If too little reliability is specified, the results will be excessive maintenance costs, excessive system downtime, and an increase in the workload of the maintenance shop. It is imperative, therefore, that a proper reliability value be specified early in the program.

Reliability documents applicable to GSE are listed and described in Table 4-3. These documents can be used as guides to establishing a comprehensive reliability program.

The reliability requirement will be specified in terms of an MTBF value. MTBF is defined as follows: "For a particular interval, the total functioning life of a population of an item divided by the total number of failures within the population during the measurement interval. The definition holds for time, cycles, miles, events, or other measure of life units."\* MTBF will generally be stated as a number of hours, depending on system complexity.

MTBF may be established either as a contractual requirement or as a goal. If the MTBF is a firm requirement, a total reliability program will be required, including the establishment of design reliability requirements, parts selection, predictions, and a demonstration test. If reliability is only a goal, the task may involve only a prediction showing that the desired MTBF appears to be attainable, and a formal demonstration test is not required. Obviously, the establishment of a firm requirement will be far more costly because it involves a complete reliability program and because the risk of not attaining the specified requirement is greater to the contractor.

As stated earlier, reliability and maintainability are major factors in system availability. A high reliability value will result in a system that can be expected to be available, but it will also reduce training costs, the number of personnel required for maintenance, the number of maintenance man-hours, spares requirements, and maintenance facilities. For most systems, it is financially advantageous to attain the highest practical MTBF by means of prudent design practices that are within the state of the art. If a full reliability program is desired, the program must be monitored continuously to assure that requirements are met. NAVAIR 417 personnel will perform the monitoring function. They must review the reliability program plans submitted by the contractor to assure that an economically effective approach is being pursued. They must also monitor the contractor's proposed reliability organization, management, and control procedures. Plans for development, qualification, and environmental testing must be approved. The development of a reliability (mathematical) model and the resultant prediction should be reviewed for accuracy. Representatives from AIR-417 should participate in the design reviews conducted by the contractors.

If only reliability goals are called for, much of the effort described above will be unnecessary. However, since the prediction is the only assurance that the equipment will attain any degree of reliability, NAVAIR must carefully monitor the reliability model and the mathematical prediction.

#### 4.3.3 Maintenance Plan

Maintenance Engineering, in its simplest form, determines where, when, how, why, and by whom those actions necessary for retaining equipment in, or restoring it to serviceable condition will be taken. This determination, based on a detailed analysis of a system's predicted reliability and maintainability characteristics, is called Maintenance planning.

Maintenance planning will influence, and be influenced by, Level of Repair (LOR) decisions. LOR is a recent concept, and much activity is being directed toward defining these areas. Basically, LOR is a description of repair-versus-throwaway, and if repair, how much at each maintenance level. Currently, some guidance is available from AR-10 which

\*MIL-STD-721B



Table 4-3. RELIABILITY DOCUMENTS

Number	Name	General Information
MIL-STD-756	Reliability Prediction	<p>Describes use of a reliability model while applying failure rates from MIL-HDBK-217.</p> <p>Gives four forms of the reliability equation, which can be used for each block of a reliability model.</p> <p>States environmental test conditions as alpha-betic test levels (A to J), calculates producer's and consumer's decision risks, and identifies accept-reject criteria.</p> <p>Guidelines for preparation of reliability program plans.</p> <p>States the capabilities which the manufacturer must have and reports to be submitted.</p> <p>States the format and types of reports required for compliance with reliability programs.</p> <p>Indicates expected failure rates for individual electronic components based on the intended environmental conditions.</p>
MIL-STD-757	Reliability Evaluation from Demonstration Data	
MIL-STD-781A	Reliability Tests Exponential Distribution	
MIL-STD-785	Requirements for Reliability Program (for Systems and Equipments)	
MIL-STD-790	Reliability Assurance Program for Electronic Parts Specifications	
MIL-STD-1304(AS)	Reliability Reports	
MIL-HDBK-217A	Reliability Stress and Failure Rate Data for Electronic Equipment	

states that items costing less than \$500 and having an MTBF in excess of 50,000 hours should be "throwaway"; all other items should be repaired. This simple guideline does not result in the most economic approach for all equipments.

The logistics manager should investigate the latest developments in LOR before developing a maintenance plan for his equipment. Even after LOR area is better identified, the APM(L) will be required to develop a maintenance plan incorporating the elements described in the following sections.

#### 4.3.3.1 Elements of Maintenance Plan

The following elements comprise the maintenance plan:

- Determination of the specific maintenance level of a system. For example, will maintenance be performed at the organizational, intermediate, or depot level?
- Description of the preventive and corrective actions to be performed at the various levels of maintenance. Such actions may include testing, servicing, repair, calibration, and overhaul.
- Establishment of the preventive maintenance schedule and determination of the specific components to be replaced.
- Provisioning determining the number of spares and repair parts required to perform scheduled and unscheduled maintenance actions. Provisioning is a joint activity of maintenance and supply personnel.
- Determining which tools, equipments, and facilities should be used to diagnose malfunctions and make maintenance easier.
- Determination of maintenance personnel requirements — numbers and skills and all the resources necessary to train the personnel.
- Determination of publication and data requirements for maintenance.

The maintenance plan is expanded into the integrated logistic support plan (see Section 4.1.2). It should be prepared as early as possible so that the equipment design can reflect the desired plan to maintain. The APM(L) should include the development of a maintenance plan in his milestone plan prepared in accordance with Enclosure 2 of NAVAIRINST 4700.6. (see Section 4.1.2).

#### 4.3.3.2 Maintenance Engineering Analysis (MEA)

It is desirable, if time and money allow, to conduct a Maintenance Engineering Analysis (MEA) Program for GSE, especially if it is anticipated that the equipment will experience a high usage rate or if the initial cost is expected to be high. Currently, there are not guidelines for establishing an MEA Program. If AR-30, *Integrated Logistic Support Program Requirement for Aeronautical Weapons, Weapon Systems, Related Equipment*, is incorporated as a part of the equipment contract, an MEA Program may be conducted. Items for which MEAs are desired are shown in block 12 of the SEL. Otherwise, an MEA program must be specified as a contractual requirement and specific requirements must be outlined.

A full-scale Maintenance Engineering Analysis Report Program can be implemented as stipulated by AR-30. A partial program may also be implemented, depending upon the need, time, and funds available. A partial MEA program can be implemented by requesting the contractor to submit a recommended list of items to be subjected to an MEA and a

justification and cost estimate for the recommendation. A partial MEA can be conducted by requiring the contractor to submit only selected exhibits from the thirteen possible from AR-30.

A complete MEA program is expensive. Therefore, when requesting a contractor to develop an initial list of items for which MEAs are to be conducted, the following guidance should be used:

MEAs should normally be conducted for the following:

- (1) Contractor-furnished repairable items that are to be procured separately.
- (2) Contractor-furnished repairable items that can or will be repaired or overhauled separately from the assembly, subsystem, or system with which they are functionally associated.
- (3) Government-furnished repairable items that are incorporated into contractor-furnished functional assemblies and subsystems when such analysis is to provide interface information required for determination of total support requirements for the assembly or subsystem.
- (4) Government-furnished repairable items for which no previous analysis data is available, and when such data is necessary for contractor determination of support requirements under the terms of the contract.
- (5) Items for which previous MEA data may be available but cannot be considered valid. In such instances, the contractor must justify the MEA.

#### 4.3.3.3 Maintenance Engineering Analysis Records (MEARS) Review

Under AR-30, when an MEA Program is established for an item of equipment, the contractor must submit Maintenance Engineering Analysis Records (MEARS) to document the results of the MEA Program in a specified format for review by the procuring activity. The review of MEARS is an important responsibility of the APM(I) and requires the establishment of a MEARS review team in accordance with BUWEPSINST 4700.7.

The primary function of a MEAR review team is to assure the development of a realistic and logical maintainability and support program for the weapon or weapon system. The review team concerns itself with the continuity of the maintenance concept, component functions, training, peculiar and general support equipment, maintenance tasks, maintenance requirement cards, material summary sheets, provisioning, technical data, initial outfitting, and source coding.

The MEAR review team is composed of representatives from NAVAIR, Material Inspection Service, Inventory Control Point, Maintenance Activities, Maintenance Engineering Analysis Branch (MEAB), Weapons Personnel Requirements Branch (WPRB), and the overhaul activity (NARF).

The purpose of a Maintenance Engineering Analysis Program is to examine opportunities for trade-offs between reliability and maintainability and between alternative maintenance policies. Features of reliability, maintainability, design, and policy are documented and this documentation provides the basic premises which will govern specific logistic resource actions. It is a fundamental means of feedback from the maintenance logistic area to the design process. The objective is to identify key maintainability and



reliability "design to" characteristics of hardware components to reduce maintenance and technical skills, establish the optimum frequency and extent of preventive maintenance, improve maintenance methods, improve diagnostic routines, reduce specialized tools and test equipment, and provide data feedback to expedite design and evaluate support.

AIR-417 is responsible for investigating requirements for accomplishing an MEA Program for appropriate end items of GSE. When an MEA is required on GSE end-items, AIR-417 must provide the AIR-534 project engineer with cost estimates and the applicable specification and contract procedures to be incorporated in procurement papers.

#### **4.3.3.4 Responsibility for Maintenance Planning**

In NAVAIR, maintenance planning for end articles is the responsibility of the Maintenance Engineering Division (AIR-411). Maintenance planning for GSE is the responsibility of AIR-417.

#### **4.3.4 Support Equipment Modification**

The procedures for effecting modifications to ground support equipment either during the design and development phase or during the operational phase of the equipment life are the same. The basic means for any modification is an Engineering Change Proposal (ECP). Section 4.3.6 details the procedures for submitting and processing ECPs in accordance with Joint Memorandum AIR-534A/AIR-417A, dated 15 April 1970.

Modifications to ground support equipment generally result from aircraft/airborne system changes. Some may be proposed by the manufacturer or the user based upon a requirement to render the equipment safer, more reliable, or more operable. These latter proposals are based upon experience gained from fabrication or use of the equipment.

Upon review of a proposed modification, the cognizant project engineer in AIR-534 proceeds as described in Section 4.3.6. This review, however, should be coordinated through the cognizant APM(L) in the Logistics and Fleet Support Group. He should advise the AIR-534 Project Engineer of the impact of the proposed modification on the various elements of logistics support. It is advisable that the APM(L) use the checklist shown in Figure 4-12 to assess the impact of the proposed change.

The Support Equipment Modification Checklist should be used whenever the GSE APM(L) has occasion to review a proposed modification. The APM(L) should ascertain whether the modification affects any of the elements of ILS and, if so, he should provide a brief explanation of the effect. He should also determine whether the proposed modification to the item of support equipment has any impact on the article it is supporting. If so, he should explain the nature of the impact. Finally, he should project the budgetary impact of the proposed modification, showing what additional costs will be involved, when these costs will be incurred, etc. Use of the checklist enables the APM(L) to document his review of the proposed modification on a single sheet.

#### **4.3.5 Review of GSE Design**

##### **4.3.5.1 AR-30/WR-5 Programs**

AR-30 (*Integrated Logistic Support Program Requirements for Aeronautical Weapons, Weapon Systems, Related Equipment*) and WR-5\* (*Support Equipment, Design, Approval*,

\*WR-5 requirements for GSE have proven less than optimum. To improve these conditions, a preliminary aeronautical requirement has been drafted and assigned the number AR-21.

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GROUND SUPPORT EQUIPMENT LOGISTIC MANAGER'S HANDBOOK, (U)  
SEP 70 L I BAIRD, J P MCCORMICK, G P METTLER N00019-69-C-0473  
918-01-1-1067

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<b>APM(L) SUPPORT EQUIPMENT MODIFICATION CHECKLIST</b>					
<b>Nature of Modification</b>  <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> Safety   <input type="checkbox"/> Reliability   <input type="checkbox"/> Operability                 </div> <div>                     Equipment ID _____                       Date of Review _____                       Used On _____                 </div> </div>					
<b>Description of Modification:</b>					
Element	Does Modification Affect?		Is Secondary Modification Required?		Budget Impact
	Yes	No	Yes*	No	
Maintainability Reliability Maintenance Planning Support and Test Equipment Supply Support Transportation Technical Data Facilities Personnel and Training Funding Management Data					
<b>*Explain:</b> _____ _____ _____ _____					

Figure 4-12. GSE Modification Checklist

*Selection and Ordering.* . .) both require an end article contractor to submit Support Equipment Lists (SELs) and Support Equipment Requirement Sheets (SERS) for those items of ground support equipment recommended for support of the end article. Review and approval of these recommendations is accomplished by NAEC(SE) with NAVAIR. Final approval is the responsibility of AIR-534; however, coordination is effected with the cognizant APM(L) in AIR-04 to assure that adequate logistics considerations are applied to the final selection of the required GSE.

In the review of the SELs and SERS, the APM(L) considers the following six questions:

- Are the recommended items of GSE compatible with the established maintenance philosophy of the end article?
- Is support of the recommended GSE adequately covered?
- What SMR codes are required for the approved items?
- What trainer requirements are necessary?
- What publications are required?
- Is calibration required?

To determine whether the items recommended in the SELs and SERS are indeed necessary (or whether a necessary item is not recommended), the cognizant APM(L) for the end article should consult with the appropriate engineer in AIR-417. The cognizant AIR-417 engineer must review the maintenance plan for the end article and ascertain whether recommended items are in consonance with the established maintenance philosophy. Column 2 of the SEL indicates the maintenance level (I, O, or D) recommended for the item. This should be compared with the maintenance plan. Each recommended item should also be reviewed by NAEC(SE) to ascertain whether the item is the equivalent of an item already in the Navy inventory. If so, AIR-534 should list the item under the established Federal Stock Number.

#### 4.3.5.1.1 SMR Codes

Source, Maintenance, and Recoverability codes are assigned to support items to indicate the manner of acquiring items for the maintenance, repair, or overhaul of end items (source code); the maintenance levels authorized to remove and replace, repair, overhaul, assemble, inspect and test, and to condemn items (maintenance code); and the reclamation or disposition action required for items which are removed and replaced during maintenance (recoverability code)\*.

Upon receiving the SELs, the AIR-417 APM(L) should establish source and maintenance codes for those items of peculiar ground support equipment to be procured. (See Section 4.3.8 of this handbook.)

Source and maintenance codes must be assigned to end items of GSE prior to the time of provisioning repair parts. SMR codes are assigned at the time of review and approval of the SEL items. Assignment is made by annotating Block 13 of the SEL with the appropriate source and maintenance code. Source and maintenance codes are given in Enclosure (1) to NAVSUPINST 4423.14. Source and maintenance codes must be assigned to all items and must be coordinated with appropriate supply personnel to assure that codes are in consonance with applicable departmental supply policies.

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\*Recoverability codes are not used by NAVAIR.

#### 4.3.5.1.2 NAMT Requirements

AIR-4135 is responsible for determining the quantities of support equipment required for training purposes in accordance with the guidelines outlined in Section 4.6. The cognizant APM(L) for the item being recommended must review the requirements, discuss them with the cognizant engineer in AIR-413, and obtain a determination from the AIR-413 engineer regarding the requirements for purchasing the item for training purposes. If quantities of the item are required for training purposes, AIR-534 should note the correct quantity in Block 9 of the SEL. If none is required, no notation is made.

#### 4.3.5.1.3 Publication Codes

AIR-417 is responsible for assigning and advising AIR-534 to complete Block 12 of the Support Equipment List.

#### 4.3.5.2 GSE Design Review

The APM(L) shall review the equipment design to assure agreement with the maintenance policy and philosophy established in the ILSP. It is desirable to coordinate this review with the test and evaluation effort conducted at NAS, Patuxent River. Any deviations from the maintenance policy should be noted and the cognizant AIR-534 engineer should be advised.

The APM(L) must examine the design and ascertain the following:

- Is the item easily maintained within the constraints of its complexity and the state of the art?
- Can it be operated and maintained by technicians with average skills, or will it require highly or uniquely skilled personnel?
- What is the anticipated reliability of the item?

#### 4.3.6 Engineering Change Proposals\*

##### 4.3.6.1 Description

An engineering change is an alteration to the configuration of a configuration item, delivered, to be delivered, or under development, after establishment of its configuration identification.\* That is, a change in the configuration of an item whose configuration has been previously identified.

An ECP is a proposal for any change to an item, facility, part, etc., delivered, or to be delivered, that will require revision to the contract specification or engineering drawings, or to the documents referenced therein, which are approved or authorized for applicable items under government contract.

The ECP is the basic means for controlling the configuration of an item. Configuration control is necessary during the engineering or operational systems development (including contract definition), production, and operational life-cycle periods of items. The formal submission and judicious review of ECPs constitutes a systematic evaluation, coordination, and approval or disapproval of all changes to the baseline configuration.

Engineering change proposals can be submitted by contractors, field activities, or fleet commands. During the design and development phases of an item's life, ECPs are generally submitted formally by the item's prime contractor. ECPs for GSE may be either of two

\*MIL-STD-480.



types, each of which is processed by a different procedure. The first type reflects a companion change to an aircraft or airborne system change. This type of ECP is authorized by the formal procedures described in Section 4.3.6.2. The aircraft change authorization (ECP approval) must fund the GSE costs for both hardware and software. Most GSE changes are of this type.

The second type of GSE change proposal is one that is recommended separately without reference to a specific end-item change, and has no impact on the aircraft or airborne systems. The latter type is described in Section 4.3.6.3.

#### 4.3.6.2 End Article Companion ECPs

Companion ECPs to aircraft or airborne systems are submitted in accordance with MIL-STD-480, *Configuration Control-Engineering Changes, Deviations, and Waivers*, and processed in accordance with NAVAIRINST 4275.3A. This standard outlines the classes, criteria, justifications, priorities, types, and format for submitting ECPs. The basic form for ECP submittal is DD Form 1692, which identifies the proposed change and quantifies the impact of the change on resources, schedules, logistics, and the operability of the item being changed.

ECPs are classified either as Class I or Class II. MIL-STD-480 contains the detailed criteria for establishing the correct classification. The following is a summary of those criteria:

Class I — Limited to those proposed changes necessary to:

- Correct deficiencies
- Make a significant effectiveness change in logistic support requirements
- Effect substantial life-cycle cost savings
- Prevent slippage in an approved production schedule

Class II — Those changes that do not meet the criteria for Class I changes.

The submitter of the ECP is required to justify any Class I ECP. MIL-STD-480 specifies that justification codes are to be noted on DD Form 1692 and that the procuring activity (Navy) review these codes for concurrence. Class I codes are listed in Table 4-4. A further explanation can be found in Paragraph 4.3.2 of MIL-STD-480.

Table 4-4. CLASS I ECP JUSTIFICATION CODES	
Code	Description
D	Correction of Deficiency
S	Safety
B	Interface
C	Compatibility
O	Operational or Logistics Support
R	Cost Reduction
V	Value Engineering
P	Production Stoppage
A	Record Only

MIL-STD-480 established three priority designators for ECPs. These designators, EMERGENCY, URGENT, and ROUTINE, require an approval or disapproval decision from the Navy within 24 hours, 15 calendar days, or 45 calendar days, respectively. The rules for priority designation are contained in Paragraph 4.5.1 of MIL-STD-480.

The processing, control, and approval of end article ECPs are the responsibility of the NAVAIR Configuration Management Office, AIR-01A6. ECPs for aircraft and contractor-furnished systems and equipment contained therein are processed through the aircraft Change Control Board (ACCB). Component ECPs covering government-furnished equipment (for engines, airborne equipment, avionic equipment, and systems, etc.) are processed through the Component Change Control Board (CCCB). The details for processing ECPs through the ACCB or the CCCB are contained in the *Ground Support Equipment Project Engineer's Handbook*. Figure 4-13 illustrates the system for processing an ECP within NAVAIR.

Processing of ECPs within NAVAIR is accomplished with the aid of a CCB Change Request, NAVAIR Form 13050/2 for all airframe and aircraft component ECPs. The following supplements to this form are prepared when necessary:

- NAVAIR Form 13050/2A for GFE (active contracts)
- NAVAIR Form 13050/2B for GFE (completed contracts)
- NAVAIR Form 13050/2C for Support Equipment

To expedite the processing of ECPs, the Assistant Project Manager/Coordinator for Material Acquisition notifies the cognizant AIR-04 APM(L), and other affected team members as soon as he decides to process an ECP. These organizational elements immediately proceed to evaluate their areas of cognizance, and to expedite the CCB Change Request when it reaches their offices.

The Engineering Change Control Branch (AIR-4106) acts as central coordinator and administrator for AIR-04 from initial receipt of an aircraft, airborne system, or equipment ECP through CCB consideration and implementation of the change.

Each Tuesday morning, AIR-4106 conducts an AIR-04 coordination conference on all missile and component changes and assumes the voting responsibilities at all CCB meetings. The basic AIR-04 staffing procedure for all ECPs is outlined below:

1. All ECPs arriving in AIR-04 are delivered to AIR-4106 for log-in and control purposes.
2. After log-in, AIR-4106 attaches the forms shown in Figures 4-14 and 4-15 to one copy of the ECP, and forwards that copy to the cognizant Logistics Manager (Integrated Logistics Support Manager, Project Coordinator, or Commodity Manager) in AIR-410 or AIR-411.
3. In coordinating with cognizant project management and acquisition personnel, the Logistics Manager reviews the ECP and completes the attached Incorporation Schedule Form (Figure 4-14), basing his determinations on availability of logistics elements, deployment schedules, and other pertinent factors. The completed Incorporation Schedule Form, showing the tentative CCB review date, is returned to AIR-4106 for reproduction and attachment to all copies of the ECP to be reviewed in AIR-04.

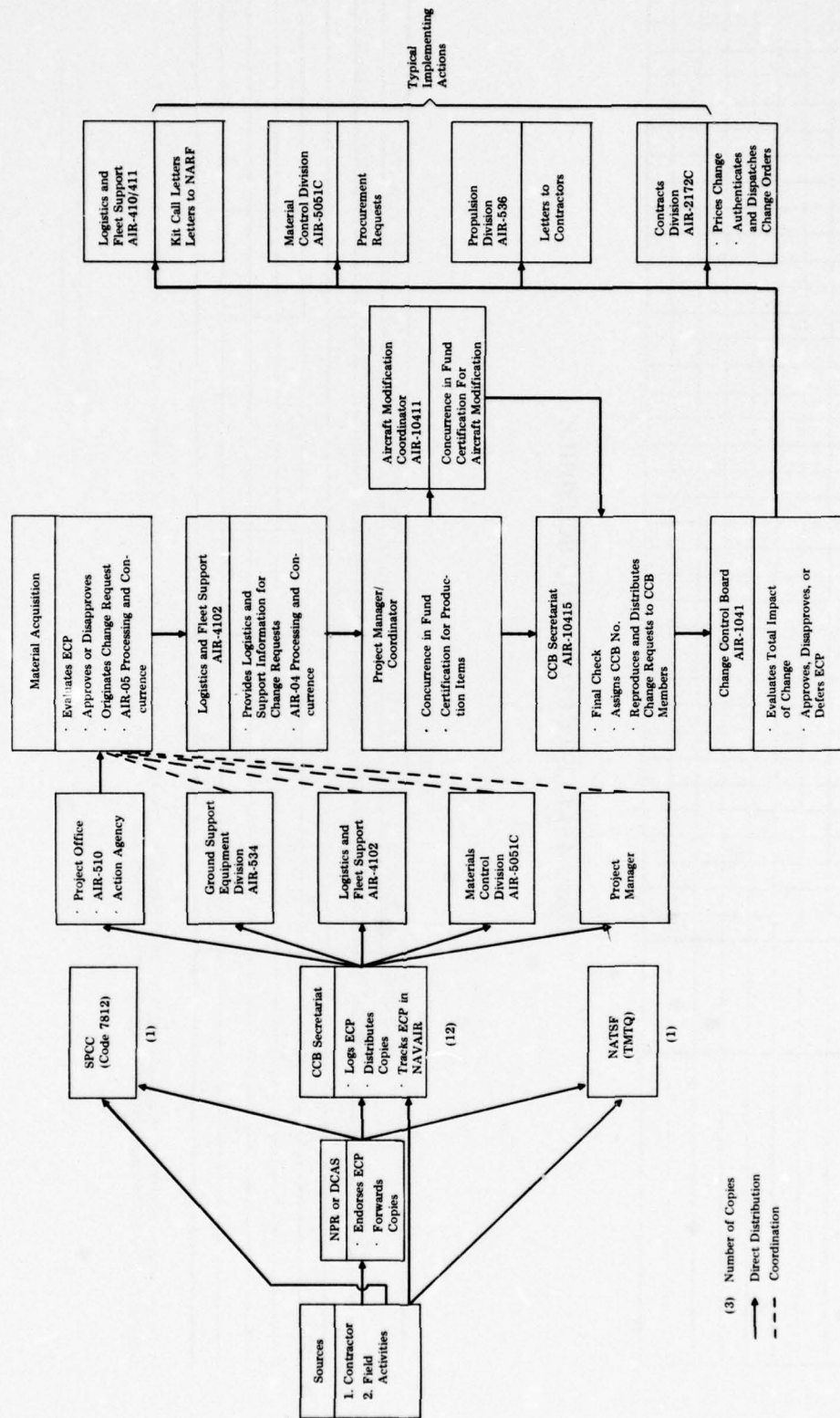


Figure 4-13. PROCESSING FLOW OF END ARTICLE ENGINEERING CHANGE PROPOSALS THROUGH ACB/CCCB



**Figure 4-14. INCORPORATION SCHEDULE**

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*Figure 4-15. AIR-411 MAINTENANCE ENGINEERING ECP EVALUATION DATA SHEET*

4. Prior to the tentative CCB review date, copies of the ECP and the annotated Incorporation Schedule Form are forwarded by AIR-4106 to each of the cognizant AIR-04 functional divisions for review, planning, and comment. Copies of the Evaluation Data Sheets are shown as Figures 4-15 through 4-19.
5. After reviewing the ECP and Incorporation Schedule Form, the functional division completes and submits it to the cognizant Logistics Manager.
6. The Logistics Manager reviews all Evaluation Data Sheets; determines requirements for ground/flight tests, MEARS, and interim support; resolves problems; and transposes these data to the summary mat, a copy of which is shown as Figure 4-20. He then submits a mat of the Cost and Funding Summary to the sponsor of the change. The master ECP folder with a copy of the Cost and Funding Summary is returned to AIR-4106 for retention until receipt of a CCB summary mat from the sponsor.
7. All formal CCB summary mats arriving in AIR-04 are delivered to AIR-4106 for log-in and control purposes.
8. After log-in, AIR-4106 submits the mats and the associated master ECP folder to the cognizant Logistics Manager for his personal signature and for presentation to, and approval by, AIR-04 or his designated representative. After the CCB summary mats are approved, they are returned to AIR-4106, logged out, and returned to AIR-10415.

An end-article ECP requires thorough scrutiny to ascertain the impact of the proposed change on the associated support equipment. A completely documented Class I ECP consists of the six-page DD Form 1692 (completed as specified in MIL-STD-480). Blocks 29 and 35 of DD Form 1692 are of particular interest to the GSE APM(L). Block 29 describes the proposed change to logistics and personnel and training requirements and Block 35 details the effects of the ECP on the logistic support of the article. Sample copies of pages 1, 2, and 3 of DD Form 1692 are shown in Figure 4-21.

Upon receipt of an end article ECP from AIR-4106, the cognizant GSE APM(L) thoroughly reviews the proposal to ascertain the following:

- Whether the proposed changes to the support equipment are necessary
- Whether consideration has been given to all aspects of the impact on the support equipment, including training, documentation, spares and repair parts, maintainability, and reliability

The maintenance policy of the end article is also reviewed to determine whether the initial maintenance policy is enhanced or jeopardized by the ECP.

The costs associated with the proposed change to the support equipment are reviewed by the GSE APM(L). He should be satisfied that the economics associated with the proposed change are consistent with the anticipated improvement from the change. Support equipment costs associated with the ECP should be shown in Block 48 of DD Form 1692.

Page 6 of DD Form 1692 is on the ECP Milestone Chart. The GSE APM(L) should review this chart to determine impact of the proposed schedule on support equipment.

Engineering change proposals may be submitted on DD Form 1693 in accordance with MIL-STD-481 (see Figure 4-22). Although this "short form" has been approved, its use is discouraged for formal submittals on GSE equipment.

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27. *Chlorophyll aa* (Chl *aa*)  
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**Figure 4-16. AIR-412 MATERIAL MANAGEMENT ECP EVALUATION DATA SHEET**

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the collection of statistics required by this Act, and the proposed plan in the above connection is that the Government should be authorized to require the production of the "Cost and Pricing" Chart, together with recommended standards of bids to which the Government is a party, in the same manner as the same are provided. Complete cost and funding data and also the proposed and estimated cost and funding data, together with the identity of the contractor, should be required and entered in the same manner as the same are provided. Complete cost and funding data and also the proposed and estimated cost and funding data, together with the identity of the contractor, should be required and entered in the same manner as the same are provided.

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**Figure 4-17. AIR-413 WEAPONS TRAINING ECP EVALUATION DATA SHEET**



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**Figure 4-18. AIR-414 MAINTENANCE MANAGEMENT ECP EVALUATION DATA SHEET**

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Special Weapons • Concessions • Tapes • NATO's Support for U.S. • Other

An extract of the latest publication / newspaper article be supported by updated reference? (Yes or No) If Yes, please attach relevant references.

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№	Имя
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3	В. Г. Голубев
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98	Я. З. Завьялов
99	З. И. Иванов
100	И. К. Козлов

### Consent Agreement

"Cost Accounting" course. Direct and indirect costs relative to preparation of changes/revisions to existing the classification of new

**Figure 1**

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**Figure 4-19. LOGISTICS TECHNICAL DOCUMENTATION ECP EVALUATION DATA SHEET**

ECP NO. \_\_\_\_\_

ECP COST AND FUNDING SUMMARY

ECP COST AND FUNDING SUMMARY	QUANTITY	PREPARING ACTIVITY	IMPLEMENT. CODE	FIRST YEAR (FY- ) FUNDING		SECOND YEAR (FY- ) FUNDING		THIRD YEAR (FY- ) FUNDING	
				FUNDED	COST	FUNDED	COST	FUNDED	COST
(COST AND FUNDING INCLUDED IN NON-RECURRING)									
TECHNICAL DIRECTIVE									
VERIFICATION									
REPAIRING									
REPAIR-BASIC EQUIP.									
REPAIR-TOOLS									
DOCUMENTATION									
MANUALS/TOOLS									
SOFTWARE DATA PKG.									
PRINTING & RPT.									
REPAIR									
GROUND FLIGHT TESTS									
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ENGINEERING CHANGE PROPOSAL, PAGE 1  
(SEE MIL-STD-480 FOR INSTRUCTIONS)

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PROCURING ACTIVITY NO.

1. ORIGINATOR NAME AND ADDRESS				2. CLASS OF ECP		3. JUST. CODE	4. PRIORITY
5. ECP DESIGNATION							
a. MODEL/TYPE	b. MFR. CODE	c. SYS. DESIG.	d. ECP NO.	e. TYPE	f. REV.	g. CORR.	6. BASELINE AFFECTED <input type="checkbox"/> FUNCTIONAL <input type="checkbox"/> ALLOCATED <input type="checkbox"/> PRODUCT 7. OTHER SYS./CONFIG. ITEMS AFFECTED <input type="checkbox"/> YES <input type="checkbox"/> NO
8. SPECIFICATIONS AFFECTED - TEST PLAN				9. DRAWINGS AFFECTED			
	MFR CODE	SPEC./DOC. NO.	SCN	MFR CODE	NUMBER	REV.	NOR NO.
a. SYSTEM							
b. ITEM							
c. TEST PLAN							
10. TITLE OF CHANGE						11. CONTRACT NO. & LINE ITEM	
12. CONFIGURATION ITEM NOMENCLATURE						13. IN PRODUCTION <input type="checkbox"/> YES <input type="checkbox"/> NO	
14. NAME OF PART OR LOWEST ASSEMBLY AFFECTED						15. PART NO. OR TYPE DESIGNATION	
16. DESCRIPTION OF CHANGE							
17. NEED FOR CHANGE							
18. PRODUCTION EFFECTIVITY BY SERIAL NUMBER				19. EFFECT ON PRODUCTION DELIVERY SCHEDULE			
20. RETROFIT							
a. RECOMMENDED ITEM EFFECTIVITY				c. SHIP/VEHICLE CLASS AFFECTED			
b. ESTIMATED KIT DELIVERY SCHEDULE				d. LOCATIONS OR SHIP/VEHICLE NUMBERS AFFECTED			
21. ESTIMATED COSTS/SAVINGS UNDER CONTRACT				22. ESTIMATED NET TOTAL COSTS			
23. SUBMITTING ACTIVITY AUTHORIZING SIGNATURE				TITLE			
24. APPROVAL/DISAPPROVAL							
a. CLASS I <input type="checkbox"/> APPROVAL RECOMMENDED		b. CLASS II <input type="checkbox"/> APPROVED <input type="checkbox"/> DISAPPROVED		<input type="checkbox"/> CONCUR IN CLASSIFICATION OF CHANGE		<input type="checkbox"/> DO NOT CONCUR IN CLASSIFICATION OF CHANGE	
c. GOVERNMENT ACTIVITY				SIGNATURE		DATE	

DD FORM 1692

S/N-0102-020-8000

D-26320

Figure 21. FORM FOR ENGINEERING CHANGE PROPOSAL (Sheet 1)



ENGINEERING CHANGE PROPOSAL, PAGE 2  
(SEE MIL-STD-480 FOR INSTRUCTIONS)

PROCURING ACTIVITY NO.

ORIGINATOR NAME AND ADDRESS

ECP NUMBER

EFFECTS ON FUNCTIONAL/ALLOCATED CONFIGURATION IDENTIFICATION

25. OTHER SYSTEMS AFFECTED

26. OTHER CONTRACTORS/ACTIVITIES AFFECTED

27. CONFIGURATION ITEMS AFFECTED

28. EFFECTS ON PERFORMANCE ALLOCATIONS AND INTERFACES IN SYSTEM SPECIFICATIONS

29. EFFECTS ON EMPLOYMENT, INTEGRATED LOGISTIC SUPPORT, TRAINING, OPERATIONAL EFFECTIVENESS, ETC.

30. EFFECTS ON CONFIGURATION ITEM SPECIFICATIONS

31. DEVELOPMENTAL REQUIREMENTS AND STATUS

32. TRADE OFFS AND ALTERNATIVE SOLUTIONS

33. DATE BY WHICH CONTRACTUAL AUTHORITY IS NEEDED

DD FORM 1692-1

S/N-0102-020-8010

D-26247

Figure 21. FORM FOR ENGINEERING CHANGE PROPOSAL (Sheet 2)

ENGINEERING CHANGE PROPOSAL, PAGE 3  
(SEE MIL-STD-480 FOR INSTRUCTIONS)

PROCURING ACTIVITY NO.

ORIGINATOR NAME AND ADDRESS

ECP NUMBER

EFFECTS ON PRODUCT CONFIGURATION IDENTIFICATION, OPERATION AND LOGISTICS

(X)	FACTOR	ENCL.	PAR.	(X)	FACTOR	ENCL.	PAR.
	34. EFFECT ON PRODUCT CONFIGURATION IDENTIFICATION OR CONTRACT						
	PERFORMANCE						
	WEIGHT-BALANCE-STABILITY (Aircraft)				36. EFFECT ON OPERATIONAL EMPLOYMENT		
	WEIGHT-MOMENT (Other equipment)				SAFETY		
	DRAWINGS				SURVIVABILITY		
	NOMENCLATURE				RELIABILITY		
					MAINTAINABILITY		
					SERVICE LIFE		
	35. EFFECT ON INTEGRATED LOGISTIC SUPPORT (ILS) ELEMENTS				OPERATING PROCEDURES		
	ILS PLANS				ELECTROMAGNETIC INTERFERENCE		
	MAINTENANCE CONCEPT AND PLANS				ACTIVATION SCHEDULE		
	MAINTENANCE PROCEDURES				OPERATING INSTALLATIONS		
	INTERIM SUPPORT PROGRAM						
	SPARES AND REPAIR PARTS				37. OTHER CONSIDERATIONS		
	TECH. MANUALS/PROGRAMMING TAPES				INTERFACE		
	FACILITIES				OTHER AFFECTED EQUIPMENT/GFE		
	SUPPORT EQUIPMENT				PHYSICAL CONSTRAINT		
	OPERATOR TRAINING				OPERATIONAL COMPUTER PROGRAMS		
	OPERATOR TRAINING EQUIPMENT				REWORK OF OTHER EQUIPMENT		
	MAINTENANCE TRAINING				SYSTEM TEST PROCEDURES		
	MAINTENANCE TRAINING EQUIPMENT						
	PERSONNEL						
	CONTRACT ENGINEERING TECH. SVCS.						
	VERIFICATION AND DEMONSTRATION PLANS						

38. ALTERNATIVE SOLUTIONS

39. DEVELOPMENTAL STATUS

40. RECOMMENDATIONS FOR RETROFIT

41. MAN-HOURS PER UNIT TO INSTALL RETROFIT KITS	42. MAN-HOURS TO CONDUCT SYSTEM TESTS AFTER RETROFIT
a. ORGANIZATION      b. INTERMEDIATE      c. DEPOT      d. OTHER <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
43. THIS CHANGE MUST BE ACCOMPLISHED	44. IS CONTRACTOR FIELD SERVICE ENGINEERING REQUIRED?
<input type="checkbox"/> BEFORE <input type="checkbox"/> WITH <input type="checkbox"/> AFTER THE FOLLOWING CHANGES:	<input type="checkbox"/> YES <input type="checkbox"/> NO
45. EFFECT OF THIS ECP AND PREVIOUSLY APPROVED ECP'S ON ITEM	46. DATE CONTRACTUAL AUTHORITY NEEDED FOR
	PRODUCTION _____ ILS _____

DD FORM 1692-2

5/N-0102-020-8020

D-26321

Figure 21. FORM FOR ENGINEERING CHANGE PROPOSAL (Sheet 3)

# MIL-STD-481

## ENGINEERING CHANGE PROPOSAL (SHORT FORM) (SEE MIL-STD-481 FOR INSTRUCTIONS)

DATE		ECP NO.	PROCURING ACTIVITY NO.		
1. ORIGINATOR NAME AND ADDRESS		2. MFR. CODE	3. CLASS OF ECP	4. JUST. CODE	5. PRIORITY
6. SPECIFICATIONS AFFECTED		7. DRAWINGS AFFECTED			
MFR. CODE	SPECIFICATION/DRAWING NO.	MFR. CODE	NUMBER	REV.	
8. TITLE OF CHANGE		9. CONTRACT NO. & LINE ITEM			
10. CONFIGURATION ITEM NOMENCLATURE		11. IN PRODUCTION <input type="checkbox"/> YES <input type="checkbox"/> NO			
12. NAME OF PART OR LOWEST ASSEMBLY AFFECTED		13. PART NO. OR TYPE DESIGNATION			
14. DESCRIPTION OF CHANGE					
15. NEED FOR CHANGE					
16. EFFECT ON ASSOCIATED EQUIPMENT					
17. PRODUCTION EFFECTIVITY BY SERIAL NO.			18. EFFECT ON PRODUCTION DELIVERY SCHEDULE		
19. RECOMMENDED RETROFIT EFFECTIVITY			20. ESTIMATED KIT DELIVERY SCHEDULE		
21. ESTIMATED COSTS/SAVINGS					
22. SUBMITTING ACTIVITY AUTHORIZING SIGNATURE			TITLE		
23. APPROVAL/DISAPPROVAL					
GOVERNMENT ACTIVITY			SIGNATURE		DATE

DD FORM 1693  
1 DEC 66

D-11884

Figure 4-22. SHORT FORM FOR ENGINEERING CHANGE PROPOSAL



#### 4.3.6.3 GSE End Item ECP

GSE end item ECPs are those that affect only the GSE and are not considered part of, or the direct result of an equipment change to an aircraft, air-launched weapon, power plant, or avionic or airborne system. The procedures described below for processing these types of ECPs are from Joint Memorandum AIR-534A/AIR-417A, dated 15 April 1970, and are intended to eliminate previous random approaches to such changes.

When GSE operational, performance, configuration management or potential/proposed changes are reported to AIR-417, whether such proposal is made by message, letter, UR, phone call, or other communication, coordination will be effected with cognizant AIR-534 personnel by telephone, conference, memo, or by routing of appropriate correspondence (the urgency of the problem or proposed change will dictate the method of handling). A mutually agreeable course of action will be established between cognizant AIR-417 and AIR-534 Codes. Similarly, if such reports are received by AIR-534, coordination and a planned course of action will be established with cognizant AIR-417 personnel.

If it is determined that an ECP is required, AIR-534 will prepare and release the correspondence directing preparation and submittal of the ECP. If funding is required to prepare the ECP, AIR-534 will furnish or cite necessary funding. Correspondence directing submittal of an ECP by a NARF must be addressed to the cognizant NAVAIRSYSCOMREP and must contain appropriate background information. Such correspondence must be routed to AIR-417 for the concurrence of AIR-41412 prior to release from NAVAIR. Correspondence directing preparation of an ECP will request the preparing activity to submit the ECP in accordance with MIL-STD-480 and to furnish an original and five copies, along with two sets of engineering data, where applicable, to AIR-10415, Configuration Control Board, for appropriate NAVAIR action.

AIR-10415 is the receiving point in NAVAIR for all ECPs. Those ECPs applicable to GSE end items will be forwarded to AIR-534 for action. AIR-10415 will forward the ECP original, plus one copy, along with one set of the engineering data, where applicable, to AIR-534. Concurrently, AIR-10415 will forward four copies of the GSE ECP along with one set of the engineering data (when applicable) to AIR-417.

AIR-534 will prepare a GSE Change Coordination Form (CCF), an example of which is shown in Figure 4-23, and route, or hand carry the form to AIR-417. This CCF will be used to consolidate and record all impact information, decisions, and resources required to implement the change. If urgency dictates, or as a matter of convenience, a meeting may be arranged with appropriate participants from AIR-534 and AIR-04. The cognizant AIR-417 code will coordinate AIR-04 review of the change, complete the data and pertinent information on the GSE CCF, and designate appropriate AIR-04 participants for attendance at the meeting if such is required. The meeting will be chaired by the cognizant AIR-534 GSE representative. He will prepare a report of the meeting and provide copies to all attendees and to AIR-534 and AIR-417. If problems or conflicts arise that cannot be resolved at the meeting, the report (setting forth both, or all, positions) will be forwarded to the GSE Program Manager for resolution.

AIR-417 will coordinate within AIR-04 and take necessary action to ensure that the GSE CCF is completed accurately and in a timely manner. When the GSE CCF is completed, it will be forwarded to the cognizant AIR-534 GSE technical representative for preparation of the "authorizing correspondence" in accordance with Paragraph 3.1 of AR-41.

GSE CHANGE COORDINATION FORM (GCF) Page 1 AIR-53A/AIR-411A (April 1970) (Complete this form and attach to GSE ECP and Page 2 of form)		CLASSIFICATION
<input type="checkbox"/> This ECP will result in more than one SEC; OR another ECP ( )		DATE: _____ CONTROL NO. _____
Subject of Change & Classification of Subject: ECP # _____		ECP Originator: _____ Equipment: _____ NAVAIR Tech/Acquisition Code: _____ NAVAIR Logistics Manager: _____
Equipment in Production <input type="checkbox"/> YES <input type="checkbox"/> NO Contractor(s): _____		
Procuring Activity:		
Incorporate in production <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Do not deliver additional units without change incorporated (even if delay in delivery is involved) <input type="checkbox"/> Introduce change as early as possible without effecting production delivery		
Funds required for production incorporation: Unit \$ _____ Total \$ _____		
<input type="checkbox"/> Conduct necessary engineering and related services to develop the change including:		
<input type="checkbox"/> Preparation of SEC (Support Equipment Change). <input type="checkbox"/> Validation of the change (on production or bailed equipment by contractor; or on evaluation/service equipment by Fleet or Field Activity). <input type="checkbox"/> Update engineering data package (drawings, specs, etc.) <input type="checkbox"/> Provide technical data to _____ for tech manual/MRC revisions. <input type="checkbox"/> Submit DCNs (Design Change Notices) or SICRs (Supply Item Change Requests) to the designated Inventory Control Point (ASO or SPCC).		
<input type="checkbox"/> To accomplish nonrecurring effort for the above, \$ _____ is being furnished by separate action or Contract Mod.		
<input type="checkbox"/> Nonrecurring costs, \$ _____ are to be charged to: Contract & Item # _____ Work Request # _____ (AIRTASK/NUA # _____)		
<input type="checkbox"/> Prepare and submit SEC in accordance with AR-41 and AR-22. The following information is provided:		
a. SEC No: _____ b. SEC Subject: (include specific words) _____		
c. Category: _____ d. Cognizant NAVAIR Codes: _____ e. Application: _____		
f. Compliance: (include specific words) _____		
g. Projected SEC Issue Date: _____ h. Planned Revision Date: _____		
i. Verification Required: <input type="checkbox"/> YES <input type="checkbox"/> NO Activity to Perform Verification: _____		
<input type="checkbox"/> Distribution of Preliminary SEC to be in accordance with AR-41 para 3.4.1.		
<input type="checkbox"/> Distribute Preliminary SEC in accordance with AR-41 para 3.4.1 except:		
Delete Following Activities _____	Add Following Activities _____	No. of Copies _____

CLASSIFICATION

**Figure 4-23. GSE CHANGE COORDINATION FORM (Sheet 1)**

GSE CHANGE COORDINATION FORM (CCF) Page 2  
 AIR-532A/AIR-437A (April 1970) (Complete this form  
 and attach to GSE ECP and Page 1 of Form)

CLASSIFICATION

Subject of Change & Classification of Subject ECP # \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 CONTROL NO. \_\_\_\_\_  
 EQUIPMENT: \_\_\_\_\_

Change will be incorporated by:

- ☐ Contractor (Offline or Field Team) at cost of \$ \_\_\_\_\_  
☐ Mod line at/by Government Facility: a. \_\_\_\_\_ at cost of \$ \_\_\_\_\_  
 b. \_\_\_\_\_ at cost of \$ \_\_\_\_\_  
☐ Fleet (and routine incorporation by DOP, if applicable, during overhaul, IRAN or rehab)  
☐ DOP during routine overhaul, IRAN or rehab (but not at Organizational or Intermediate)

Modification Kits are required and:

- ☐ Will be furnished by:  
☐ Activity to furnish kits will be determined by: \_\_\_\_\_  
 Total number of Kits to be furnished: \_\_\_\_\_ at cost of \$ \_\_\_\_\_  
 a. No. of Kits to modify basic equipment: \_\_\_\_\_ at cost of \$ \_\_\_\_\_  
 b. No. of Kits to modify spare components: \_\_\_\_\_ at cost of \$ \_\_\_\_\_  
 c. No. of Kits for training/training equipment: \_\_\_\_\_ at cost of \$ \_\_\_\_\_  
 d. Unit cost of Kit: \$ \_\_\_\_\_

☐ Funds in the amount of \$ \_\_\_\_\_ are being provided to \_\_\_\_\_  
 by separate action to cover cost of Kits.

☐ Kit costs are to be charged to: Contract & Item # \_\_\_\_\_  
 Work Request # \_\_\_\_\_  
 (AIRTASK/WUA # \_\_\_\_\_)

Designated Kit Manager is NAVAIRSYSCOM/PEPLANT.

Kits are to be managed in accordance with NAVATPINST 4720.1.

☐ NATSP is requested to initiate action to have manuals/MRCs updated.

Estimated cost to update manuals/MRCs: \$ \_\_\_\_\_  
☐ \$ \_\_\_\_\_ being provided separately to NATSP by \_\_\_\_\_ (Activity)

☐ Manual/MRC update cost to be charged to:  
 Contract & Item # \_\_\_\_\_  
 Allotment # \_\_\_\_\_  
 Work Request # \_\_\_\_\_  
 (AIRTASK/WUA # \_\_\_\_\_)

The SEC Preparing Activity shall ensure that DCNs/SCPs are submitted to the ICP prior to completion of the SEC, and that a concurrent request is submitted for new FSMs for all newly identified "P Coded" parts, assemblies and the modified end item of GSE, if applicable. The completed SEC must reflect these new FSMs.

COST SUMMARY: TOTAL COST OF CHANGE \$ \_\_\_\_\_  
 \$ \_\_\_\_\_ currently available under existing Contract, AIRTASK/WUA, Allotment, Work Order.  
 \$ \_\_\_\_\_ total additional funds required to implement the change.  
☐ \$ \_\_\_\_\_ required/to be furnished for production incorporation of the change.  
☐ \$ \_\_\_\_\_ required/to be furnished for nonrecurring costs.  
☐ \$ \_\_\_\_\_ required/to be furnished for Kits.  
☐ \$ \_\_\_\_\_ required/to be furnished for Offline, Field Team or Mod Line incorporation of the change.  
☐ \$ \_\_\_\_\_ required/to be furnished for tech manual/MRC update.

(Amplifying information, comments and/or detailed instructions)

CLASSIFICATION

Figure 4-23. GSE CHANGE COORDINATION FORM (Sheet 2)



The authorizing correspondence, accompanied by funding papers (or certification that funds are currently available) for each element of the change, such as production incorporation, SEC preparation, SEC printing and distribution, kits, technical manual revisions, spares modification, trainers, special tools, etc., will be forwarded to the GSE Program Manager (or his assignee) for release to the appropriate ACO, PCO, or field activity. Copies of the authorizing correspondence shall be provided to all concerned field activities (NAVAIRSYSCOMREPs, NATSF, ASO/SPCC, NAEC, etc.) as well as NAVAIR internal codes (AIR-10415, AIR-417, AIR-415, AIR-414, AIR-53413, etc.), as appropriate.

The contractor or field activity will prepare the SEC (see Section 4.4.6 of this handbook) and initiate other action as directed, such as furnishing required retrofit kits, providing engineering and supply data, furnishing technical manual revision information, conducting validation/verification of the change, etc.

#### 4.3.7 Calibration

##### 4.3.7.1 General

The Secretary of the Navy requires that cognizant Systems Commands provide equipment and facilities to assure adequate calibration capabilities. These requirements are detailed in NAVAIRINST 4355.4, which states that calibration of equipment will be performed at the lowest reasonable level commensurate with its use.

Major responsibilities for calibration are identified in Section 4.25 of the GSE Project Engineer's Handbook, the "Red Book". The Logistics Manager should coordinate with the AIR-534 Project Engineer to assure that (1) Preparation of required calibration procedures by the contractor is a line item on the contract DD Form 1423. (2) Upon approval of the contractor's recommended SELs, those equipments for which calibration is required are specified. This is accomplished by including a "C" in Block 12 of the SEL along with the appropriate publication code. (3) The preparation review and distribution of the calibration procedures through the responsible Navy activities are monitored.

The organizational responsibilities for calibration addressed in the "Red Book" include the following:

- Naval Air Technical Services Facility (NATSF)
- Naval Air Systems Command Representatives (NAVAIRSYSCOMREP)
- Navy Metrology Engineering Center, Pomona, California (MEC)
- Government Contract Administration Offices

These organizations perform the functions described in the following paragraphs.

##### 4.3.7.2 NAVAIRSYSCOMREPs

The NAVAIRSYSCOMREPs examine scheduling and budget requirements within geographic areas and handle, on an exceptional basis, those items that appear to require unscheduled calibration. NAVAIRSYSCOMREPs relay from the fleet to AIR-417 suspected areas of GSE difficulty, such as a test station that appears to be scheduled for excessive calibration, or one that seems consistently to go out of calibration before its cycle time. When reports of the latter type occur, the NAVAIRSYSCOMREPs assist in expediting the malfunctioning GSE unit through the most practical calibration facility for a one-time adjustment.

#### 4.3.7.3 MEC

For permanent relief of the type of difficulty described above, the AIR-417 Logistics Manager must contact the Navy Metrology Engineering Center (MEC), Pomona, California. The MEC is chartered to oversee all Department of the Navy calibration equipment and procedures and is responsible for designating calibration/qualification intervals (cycles) for all GSE, for preparing and giving final approval to changes to Navy calibration procedures for laboratory standards, and for nonaeronautical CGSE. Information concerning calibration procedures and intervals is forwarded to NASTF for inclusion in the *Metrology Requirements List*, NAVAIR 17-35MTL-1, which is published semiannually. This publication lists the maximum interval (cycle time in months) between calibrations and the approved calibration procedures document when one exists (see Figure 4-24). To set meaningful cycle times, MEC maintains and analyzes statistical data on out-of-calibration conditions of all CGSE and PGSE for which sufficient data has been accumulated. This information will be made available on request for an individual equipment type or to help alleviate a specific problem. A program is under way to prepare procedures for those CGSE items on the list for which there are currently no approved calibration procedures.

#### 4.3.7.4 NATSF

MEC does not prepare calibration procedures for PGSE. This is the responsibility of NATSF (Technical Services Division). The *Metrology Requirements List*, published semiannually by NATSF, states, "NATSF is responsible for designating aeronautical calibration procedures, the monitoring and revising of prepared procedures and for guidance to contractors" NATSF is responsible for developing the required procedures for those items of PGSE for which the Metrology Requirements List does not list an approved calibration procedure.

#### 4.3.7.5 New Equipment

When new equipment is being introduced into the Naval inventory, calibration support requirements should be incorporated in accordance with the flow shown in Figure 4-25. It is emphasized that this process is initiated by marking "C" in block 12 of the SEL.

### 4.3.8 Source and Maintenance Coding

#### 4.3.8.1 Background

Source and maintenance coding is an alphanumeric coding system applied to all parts, material, and equipment used in the construction and support of each weapon system or end article. Once it has been determined that a major item will be repaired, a determination must be made regarding its constituent parts and assemblies, and codes must be assigned to each, showing whether that part or assembly will be stocked or repaired, and to what level. Coding is usually accomplished during the provisioning conference, and is related to the supply functions described in Section 4.5.5.

The implementation of source and maintenance coding is designed primarily to provide better spare parts support for less money. Conscientious coding is expected to materially improve the selection of items required for support of end items of GSE. The source and maintenance code appraises the user of the source of the part(s), material, or equipment required (i.e., whether the part should be requisitioned, whether it should be service manufactured and, if so, at what level; whether the part should be repaired and by whom; whether the next higher assembly should be requisitioned, etc.).

NAVAIR 17-35-MIL-1 METROLOGY REQUIREMENTS LIST						
TYPE DESIGNATION	WGR NO.	ITEM NAME OR FEDERAL STOCK NUMBER	CYCLE	MAINT. MANUALS OR SUPP. DATA	APPROVED CALIBRATION PROCEDURE	REMARKS
BSGT	82050	EQ-SG-134/ARM-19				
BSGTR	82050	GENERATOR RF SIGNAL	03		17-20AG-96	
BSGTRC	82050	SIGNAL GENERATOR EQ-SG-134/ARM-19	04		17-20AG-96	
BST-DC-1	00775	TEST SET SYNCHRON R 6625-535-R520-T030	00	17-15CF-511		
BT	99195	THERMOCOUPLE, IRON-C	12		17-20MT-05	
BTS-26	82050	TEST SET RADIO RM6625-805-5715-E222 SAME AS AN/ARM-62 EQ-110559	06			
BTS-27	82050	TEST SET RADIO RM6625-805-5A92-E222 SAME AS AN/ARM-55 EQ-110625	06	16-30ARA55-1		
BTS-28	82050	TARGET CONTROL SYSTEM R 6625-951-3682-FANN SAME AS AN/SRM-2	06			
BT2AD	71384	TESTER TACHOMETER	06	17-15CM-501 PES 36-63	LCP-MET-154	
BT2ADM	65747	TESTER TACHOMETER RM4920-56C-6A17-T030 BT2AD EQ-KR1645	06	17-15CM-501 33A3-4-1-296	PES 36-63	
BTX-54906-097	73030	TEMPERATURE CONTROL				
BUL3	20751	THERMOPILE	12			
BW4EPS-2	80058	RADIATION ABSORBER DME	00			
BVHL2	89715	OVEN	00			
BW616-100	80006	METER VSWR	03			
BW620-100	80006	METER VSWR	03			
BW624-100	80006	METER VSWR	03			
BW632-100	80006	METER VSWR	03			
B008	80058	FIXTURE TEST	06			
B017	80058	TESTER PRESSURE VACU  CALIBRATE GAGES AND METERS AS REQUIRED	00			
B018	63857	TESTER FLOW RSTR  CALIBRATE GAGES AND METERS AS REQUIRED	00			
B019	63857	TESTER LOW PRESSURE  CALIBRATE GAGES AND METERS AS REQUIRED	00			
B05G003	12464	GENERATOR SIG HI-PWR	06	16-45-384 33D7-44-76-1		
B092	34659	TEST SET CCNT  WILL BE INCLUDED IN NM17-20044-1 FOR PAR T NUMBER 70000143	06			
B10A	39818	HEIGHT GAGE ELECTRON	00		17-20MD-05	
B10B	39818	HEIGHT GAGE ELECTRON	00		17-20MD-05	
B10C	39818	HEIGHT GAGE ELECTRON	00		17-20MD-05	
B10OR	03683	TORQUE SCREW DRIVER	01			
B106	34659	ACCESSORY KIT	00			
B107	34659	HORN POSITIONER	06			
B110026	82199	ANALYZER SPECTRUM RM6625-557-4762-F212 SAME AS AN/UPV-84	12		17-20GW-01	
B12	83590	TRANSFER STD, PMS DISP	12			
B1210MH36	02294	POWER SUPPLY DC	00			
B1235MH8	02294	POWER SUPPLY DC	00			

Figure 4-24. SAMPLE PAGE FROM METROLOGY REQUIREMENTS LIST



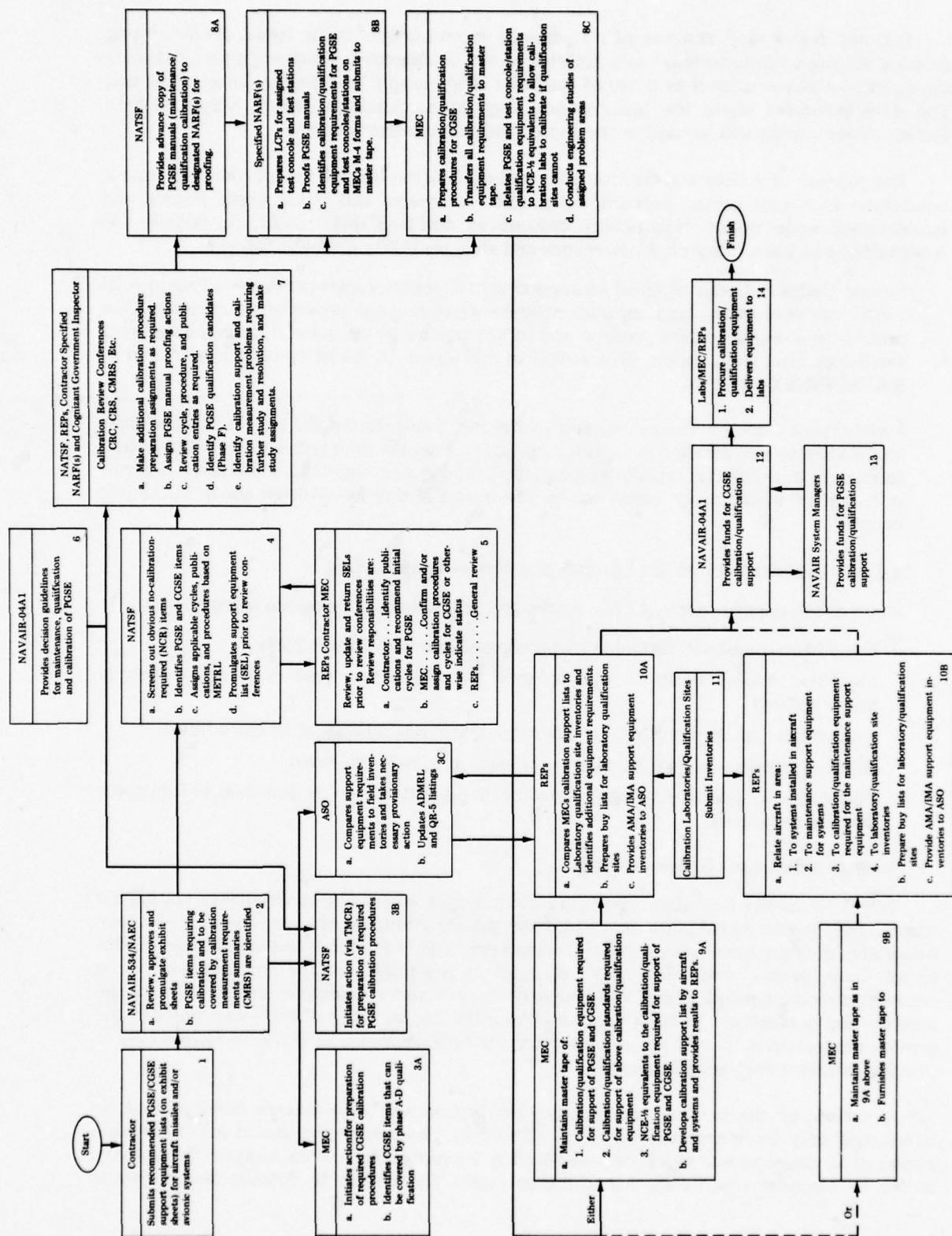


Figure 4-25. PROCEDURE FOR INTRODUCING CALIBRATION SUPPORT REQUIREMENTS

Detailed review and analysis of all parts of an end article at the initial source coding meeting employs the knowledge and abilities of the contractor's design engineers and parts sales representatives as well as those of qualified Navy supply and maintenance personnel. The data generated when the Maintenance Engineering Analysis (MEA) is applied to a system or equipment will be used in the source and maintenance coding.

The process of source and maintenance coding is often termed "source coding" and is conducted as a part of the provisioning process for spares and repair parts. Source and maintenance code policy is officially defined by SECNAVINST 4423.3A, *Policies for Assignment and Use of Source, Maintenance and Recoverability Codes* as follows:

**Source Codes** — Codes assigned to support items (spares, repair parts, parts lists, special tools, test equipment, and support equipment) during the provisioning or acquisition process to indicate to maintenance and supply personnel the manner of acquiring items for the maintenance, repair, or overhaul of end items. A list of codes can be found in NAVSUPINST 4423.14.

**Maintenance Codes** — Codes assigned to support items during the provisioning process to indicate to the maintenance and supply personnel the maintenance levels authorized to remove and replace, repair, overhaul, assemble, inspect and test, and condemn items. A listing of maintenance codes can be found in the references listed above for source codes.

#### **4.3.8.2 Benefits Derived from Source and Maintenance Coding**

Some of the benefits derived from source and maintenance coding are listed below:

- Establishes sound and rational provisioning of spares and spare parts
- Identifies lowest level of maintenance at which the part is used or service manufactured
- Establishes a uniform system for identifying the repairability of all Navy items
- Clearly identifies items for which spare parts have been procured
- Eliminates the possibility that repairs will be undertaken in the field before spare parts are procured.

#### **4.3.8.3 Assignment Responsibility**

The GSE APM(L) is responsible for assuring that source and maintenance coding for spares and replacement parts is conducted properly during the provisioning process. Generally, the item contractor provides recommendations for source and maintenance codes to all items, spares, and repair parts released or recommended for procurement. These contractor-recommended codes are included in provisioning documentation used at the provisioning conference. In those cases in which the contractor has not been trained in the provisioning process, it will be necessary for the GSE APM(L), in this case (AIR-417), to provide whatever assistance is required.

A review of the contractor-recommended source and maintenance codes should be conducted only by technically qualified personnel. The contractor should make available copies of all drawings and specifications covering the parts being coded. Usage is the primary factor to consider when assigning a source code. The ability to manufacture a part is

considered of secondary importance and whenever practical, parts will be source coded commensurate with known or anticipated use. From a supply standpoint, only items source coded in the "P" series and parts kits coded "C", "D", or "F" will be stocked. All items source coded in any other way will be service manufactured, assembled, or purchased for immediate use but will not be stocked by the supply system.

#### 4.3.8.4 Policy

Basic NAVAIR policy governing the use of source and maintenance codes is outlined in various documents but is summarized here because of its importance.

- Source and maintenance coding will be used to the maximum extent practicable in all commodity areas in which provisioning is practiced.
- Items of maintenance significance appearing on the list of parts provided by the contractor for provisioning purposes will be assigned appropriate codes during the provisioning process.
- Source and maintenance codes assigned to support items for a specific equipment will be inserted in the documents or records used by personnel requiring the information, and the documentation will be kept current. Codes will not be included as part of stock numbers.
- Source and maintenance codes are to reflect adequate consideration of manufacturing, maintenance, and supply practices, techniques, experience, and capabilities of the Department of the Navy.
- When one military service is the procuring agent for another service, the using service is responsible for coding parts for the equipments that are being procured for its use.
- Source codes as developed by maintenance personnel will be coordinated at the provisioning conference with cognizant supply personnel to assure that codes are in consonance with applicable departmental supply policies.
- Source and maintenance codes will be published and maintained in allowance documents and, when feasible or when directed by appropriate authority, in technical manuals, maintenance publications, and supply documents.

#### 4.3.9 Interim Support

Interim support involves the process of contracting with private industry for logistics support of a delivered item until such time as the Navy support system is capable of providing such support. Interim support is a costly process and is entered into only when the schedule requirement for rendering the item operational is of greater importance than the economics of the situation. The decision to enter into interim support for an item of GSE rests with the cognizant APM(L) in AIR-417, in conjunction with the acquisition manager in AIR-534.

The cognizant GSE APM(L) must ascertain at the outset of his program whether the development contract for the item contains a clause which gives the Navy the option for procuring interim support. The GSE APM(L) should take the necessary action to assure that this option is present in the development contract should he feel that interim support would be necessary or desirable. NAVAIRINST 4700.6 contains standard clauses for logistics inputs GSE procurements which contains interim repair parts clauses.

Prior to the time of budget submittal, the cognizant APM(L) in AIR-417 should ascertain whether the requirement for interim support exists and then take the necessary



action for projecting the extent of these requirements. The cognizant functional Divisions of AIR-04 should be consulted relative to their areas of functional responsibility (e.g., training, documentation, spares, and repair parts, etc.).

The GSE APM(L) should then make sure that the necessary funds are available and that AIR-534 is made aware of the decision for interim support. The contractor is notified of the need for interim support via the procedure outlined in Section 4.6 of the *Ground Support Project Engineers Handbook*.

#### **4.3.10 Maintenance Requirement Cards (MRC)**

##### **4.3.10.1 Background**

To facilitate a maintenance program for GSE (common and peculiar) within the scope of the planned maintenance system, Maintenance Requirement Cards (MRC) are developed for all operational and calendar maintenance necessary to maintain the GSE in an effective operational condition.

MRCs list minimum periodic-maintenance requirements for a specific weapon system or item of GSE. If necessary, they also contain step-by-step procedures for periodic maintenance. Specific information to assist maintenance personnel in recognizing proper conditions or deficiencies are also provided.

The MRCs do not contain instructions for repair, adjustment, or correction of defective conditions. They do, however, reference publications that contain the appropriate instructions. To effect efficient calendar maintenance, the cards are arranged sequentially by work areas and systems. Two types of card sets are provided, as follows:

- a. **Preoperational** — Preoperational cards contain instructions to service, and if applicable, to visually and operationally check each unit of equipment to ensure its proper operation.
- b. **Calendar** — Calendar cards are designed to ensure a thorough examination of each unit of equipment to reveal any material degradation that may have occurred during the preceding calendar period to be detected. The cards are also used in performing essential preventive maintenance.

##### **4.3.10.1.1 MRC Identification**

GSE common card sets are numbered sequentially and are identified as follows:

- a. **Preoperational** NAVAIR 17 or 19-600-XXX-6-1 (Figures 4-26 and 4-27)
- b. **Calendar** NAVAIR 17 or 19-600-XXX-6-4 (Figures 4-28 and 4-29)

Card sets currently in the system and numbered NAVAIR/NAVWEPS 17 or 19-600 -6 (daily) and NAVAIR/NAVWEPS 17 or 19-600 -7 (periodic) will retain these identifying numbers until superseded by a change or revision or until the equipment is phased out and the cards cancelled.

GSE-peculiar card sets are identified with the publication number assigned to the air weapons system that the equipment is designed to support. These cards are identified as follows:

- a. **Preoperational** — NAVAIR 01-XXX-6-7 (Figure 4-30)
- b. **Calendar** — NAVAIR 01-XXX-6-8 (Figure 4-31)

<b>PREFLIGHT</b> <b>INTRODUCTION</b> <b>GENERAL DESCRIPTION</b> <p>This card set contains the minimum preflight maintenance requirements. These requirements are to verify proper servicing and to inspect for obvious defects. Clearances, pressures, tolerances, illustrations, equipment required and publication references are presented where pertinent. The cards and tasks thereon are sequentially arranged and consecutively numbered in the most logical order for performing the required tasks.</p> <p style="text-align: center;"><b>APPLICATION</b></p> <p>Preflight requirements shall be accomplished prior to each flight except that for the first flight of the day, the accomplishment of the Daily maintenance requirements immediately prior to flight shall satisfy these requirements.</p>			
CARD 1	PUBLICATION NUMBER NAVAIR 01-XXX-6-1	CARD SET DATE	CHANGED

Figure 4-26. PREOPERATIONAL INTRODUCTION MRC

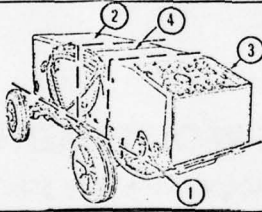
NAVWEPS 17-600-2-6-1					
<b>PREOPERATIONAL MAINTENANCE REQUIREMENTS HYDRAULIC TEST STAND GASOLINE ENGINE DRIVEN NH-1 (GGEP) (BEACON STEEL CORP.)</b>					
PUBLISHED BY DIRECTION OF THE COMMANDER NAVAL AIR SYSTEMS COMMAND					
 <div style="float: right;"> <b>WORK AREA</b>  1. Chassis  2. Engine Assembly  3. Hydraulic System  &amp; Control Panel  4. Fuel Tank &amp; Reservoir  Assembly </div>					
<b>WORK AREA</b>	<table border="1" style="width: 100%;"> <tr> <td style="width: 50%;"></td> <td style="width: 50%; text-align: right;">ELEC-PWR OFF</td> </tr> <tr> <td></td> <td style="text-align: right;">HYD PWR OFF</td> </tr> </table>		ELEC-PWR OFF		HYD PWR OFF
	ELEC-PWR OFF				
	HYD PWR OFF				
1 3 4 4 2 2 2	1. Brakes for effective operation. 2. Instrument and Control Panel: a. gauges for cleanliness, cracked or broken glass and ZERO or NORMAL indication. b. indicator scale for legibility and proper alignment. c. control valves for free rotation and in the OFF or NORMAL shut-down position. 3. Hydraulic reservoir for proper fluid level; use hydraulic fluid MIL-H-5606. 4. Fuel tank properly serviced; use regular grade automotive gasoline. 5. Service hose for cleanliness, cuts, chafing and proper stowage; quick disconnects for cleanliness and damage. 6. Battery cables and terminals for corrosion; connections for tightness. Proper specific gravity and electrolyte level (weekly). 7. Engine crankcase for proper oil level; use lubricating oil MIL-L-2104 SAE 30 Above 32° F. SAE 10 Below 32° F. 8. Radiator for proper coolant and proper coolant level; use Ethylene Glycol O-A-548a below 32° F. sufficient for the degree of protection required.				

Figure 4-27. PREOPERATIONAL MRC

<b>CALENDAR</b> <b>INTRODUCTION</b> <b>GENERAL DESCRIPTION</b> <p style="font-size: small;">This card set contains the minimum Calendar maintenance requirements. These requirements are to inspect the aircraft for material degradation that may have occurred during the preceding calendar period and to perform essential preventive maintenance. Clearances, pressures, tolerances, illustrations, equipment required and publication references are presented where pertinent. The cards in this set are arranged in groups according to the rating/MOS required to perform the tasks. A Sequence Control Chart is provided to program the accomplishment of calendar requirements in a logical order. Certain Calendar maintenance requirements may be scheduled only every other calendar period. In this case these requirements are identified as Odd Calendar or Even Calendar, and Sequence Control Charts titled Odd Calendar and Even Calendar are provided.</p> <p style="text-align: center;"><b>APPLICATION</b></p> <p>The Calendar maintenance requirements shall be accomplished at the interval established by NAVAIR INST 4700.2.</p>			
<b>CARD</b> <b>I</b>	<b>PUBLICATION NUMBER</b> NAVAIR 01-XXX-6-4	<b>CARD SET DATE</b>	<b>CHANGED</b>

Figure 4-28. CALENDAR INTRODUCTION MRC

<b>NAVAIR 19-600-38-6-4</b>	
<b>CALENDAR MAINTENANCE REQUIREMENTS CARDS</b> ACCOMPLISH THESE REQUIREMENTS IN ACCORDANCE WITH SCHEDULE ____ <b>MOBILE ELECTRIC POWER PLANT</b> <b>GACG</b> (CONSOLIDATED DIESEL)  THESE MAINTENANCE REQUIREMENTS CARDS WILL BE USED IN CONJUNCTION WITH REFERENCE LISTING ON CARD IV PUBLISHED BY DIRECTION OF THE COMMANDER OF THE NAVAL AIR SYSTEMS COMMAND  <div style="text-align: right;">1 JULY 1966</div>	

Figure 4-29. CALENDAR MRC



<p align="center"><b>SPECIAL SUPPORT EQUIPMENT</b></p> <p align="center"><b>PREOPERATIONAL</b></p> <p align="center"><b>INTRODUCTION</b></p> <p align="center"><b>GENERAL DESCRIPTION</b></p> <p>This card set contains the minimum Preoperational maintenance requirements necessary to insure the operational readiness of special support equipment. Clearances, pressures, tolerances, illustrations, equipment required and publication references are presented where pertinent.</p> <p align="center"><b>APPLICATION</b></p> <p>Preoperational requirements shall be accomplished prior to the use of the subject equipment unless otherwise noted on the card.</p>			
<b>CARD</b> i	<b>PUBLICATION NUMBER</b> NAVAIR 01-XXX-6-7	<b>CARD SET DATE</b>	<b>CHANGED</b>

*Figure 4-30. PGSE PREOPERATIONAL INTRODUCTION MRC*

<p align="center"><b>SPECIAL SUPPORT EQUIPMENT</b></p> <p align="center"><b>CALENDAR</b></p> <p align="center"><b>INTRODUCTION</b></p> <p align="center"><b>GENERAL DESCRIPTION</b></p> <p>This card set contains the minimum Calendar maintenance requirements. These requirements are to inspect Special Support Equipment for material degradation that may have occurred during calendar period and to perform essential preventive maintenance. Clearances, pressures, tolerances, illustrations, equipment required and publication references are presented where pertinent.</p> <p align="center"><b>APPLICATION</b></p> <p>These requirements shall be accomplished prior to the expiration of the calendar period indicated on each card.</p>			
<b>CARD</b> i	<b>PUBLICATION NUMBER</b> NAVAIR 01-XXX-6-8	<b>CARD SET DATE</b>	<b>CHANGED</b>

*Figure 4-31. PGSE CALENDAR INTRODUCTION MRC*

#### **4.3.10.1.2 MRC Preparation**

All MRCs are prepared in accordance with MIL-M-23618B(AS), *Manuals, Technical: Periodic Maintenance Requirements, Preparation of*

#### **4.3.10.2 Responsibilities for MRCs**

AIR-417 is responsible for establishing the requirements for all items of GSE and for administering their preparation, use, and revision.

NAILSC, Patuxent River, Maryland is responsible for the development, preparation and revision of CGSE preoperational and calendar MRCs. NAILSC also monitors contractor-prepared MRCs for PGSE. The NAILSC accomplishes this for GSE items under the direction of AIR-417. Portions of this task are often assigned to the field activity NATSF at Philadelphia, Pennsylvania, by NAILSC.

Printing and distribution of MRCs is the responsibility of the Naval Air Technical Services Facility (NATSF), but it is the responsibility of the cognizant engineer in AIR-417 to make sure that sufficient funds are made available to the NATSF by AIR-415 for this task. Too often, this is the limiting factor in introducing MRCs and results in either no periodic maintenance or inadequate periodic maintenance of GSE in the field.

Each activity having prime custody of GSE on which MRCs have been developed, as listed in NAVSUP Publication 2002, Section VII, and its supplements, is responsible for submitting its requirements on NAVWEPS Form 5605/2, *Mailing List Request for Aeronautic Publications*, to the Commanding Officer, Naval Air Technical Services Facility, 700 Robbins Avenue, Philadelphia, Pennsylvania 19111.

### **4.3.11 Peculiar GSE End-Item Demonstration Conference**

#### **4.3.11.1 Background**

An end article production contract for a new item may require "First Article Demonstration" for new GSE items prior to acceptance by the Navy. It has been found that new GSE items developed in support of a new weapon-system component often are inadequate or superfluous. To preclude the possibility of such items being accepted and introduced into the Navy inventory, contracts for such items often contain "first article demonstration" provisions. Thus, the contractor is required to demonstrate the suitability and performance of the proposed GSE end-item.

Before the demonstration, the logical requirement for and compatibility between the prime end article and the proposed PGSE have been proven and reviewed "on paper", and the initial procurement quantities and SMR codes have all been established. The purpose of the demonstration then, is to prove that the "paper" analysis was valid.

Although the demonstration conference is desirable and is extensively used in procuring GSE for engines, the technique is not often used in procurement of airframe or avionic GSE.

#### **4.3.11.2 Process**

When "first article demonstration" is required under the terms of the contract and 90 percent or more of the total types of GSE are available, the inventory control point or NAVAIR will schedule the demonstration conference at the contractor's facility. Either the

representative from the ICP (usually ASO) or NAVAIR (usually AIR-534) will chair the conference, as prearranged. The ICP, coordinating with NAVAIR, will decide which other representatives will attend the conference. Activities represented at the conference will normally include Fleet(s) (LANT/PAC), the NAVAIRSYSCOMREPs (LANT/PAC), cognizant NARF, AIR-534, ASO, and NAEC, in addition to NAVAIR (AIR-534 and AIR-417). If possible, all attendees will be invited at least 15 days prior to the date the conference is scheduled to be convened.

The Government is responsible for assuring that the required GFE end-article is available for the demonstration. Contractor personnel demonstrate the value and usability of the proposed GSE items, as actually applied to the prime-end-article.

#### **4.3.11.3 Alternative Actions**

The conference attendees may take one of three basic actions. They may (1) reject the item, (2) require that the item be modified before acceptance, or (3) accept the item as proposed. The new PGSE may be categorized as shown in Figure 4-32. The figure indicates the effect of the categorization on the GSE reference in publications.

During the conference, the established allowances and SMR Codes will be reviewed and modified as deemed necessary by the attendees. Within 45 days after the conference, the ICP or NAVAIR will incorporate all changes into the appropriate internal documents, including the procurement documents.

The conference minutes will state the disposition of each item of PGSE, in a manner similar to that shown in Figure 4-32.

### **4.4 IN-SERVICE ENGINEERING**

This section addresses those functions required to provide proper in-service engineering (maintenance) to operational items of GSE.

#### **4.4.1 Operational Safety and Improvement Program (OSIP)**

##### **4.4.1.1 Definition and Background**

The Operational and Safety Improvement Program (OSIP) is an orderly, planned method of programming and budgeting the modification and modernization of in-service aircraft. Navy policy restricts modifications of aircraft or weapons systems to those which improve safety or operational effectiveness of the system. Accordingly, requested modifications are considered to be part of the OSIP, and items modified as part of the program are called OSIP items.

##### **4.4.1.2 Responsibilities**

The administration of the Operational and Safety Improvement Program is the responsibility of the Project Support Branch (AIR-10411). Annually, AIR-10411 solicits the submission of prospective OSIP items by a separate NAVAIR Notice. Interim nominations for OSIP items can be submitted if urgency dictates.

OSIP items can only be submitted on equipments for aircraft and airborne systems. GSE items cannot be nominated for OSIP modifications. However, if an OSIP change to an



1. FUNCTIONAL EQUIVALENT (Use FSN , or P/N , or Use Equivalent)

Used when there is an item available which can be used in lieu of the special tool recommended. If known, the FSN or P/N for the equivalent item will be listed in parenthesis. If the FSN or P/N is not known "Use Equivalent" will be in parenthesis following the contractor's special tool number. This indicates there is existing equipment which can be used to do the job and/or function.

Publications: List the special tool recommended by the contractor, following shall be the FSN or P/N or "Use Equivalent" in parenthesis.

2. NOT REQUIRED

The item is not required to perform the maintenance function on the applicable engine.

Publications: The special tool will not be listed.

3. PENDING

The item is being considered. A decision will be made upon completion of a further investigation.

Publications: The special tool will not be listed.

4. NOT APPROVED

The design or concept for which the tool is recommended does not meet the requirements of the Navy.

Publications: The special tool will not be listed.

5. SUPERSEDED BY P/N OBSOLETE

The item is not usable in its existing design and cannot be economically reworked.

Publications: The special tool will not be listed.

6. SUPERSEDED BY P/N USABLE

The item is superseded for future procurement, however, existing stock can be used until exhausted. The part number of the new item must be shown.

Publications: In the numerical tool index the superseded tool as well as the superseding tool will be listed with a cross reference for each. Example:  
P/N OLD (Sup. by P/N NEW)

Figure 4-32. CATEGORIES OF PGSE (SHEET 1)

**7. SUPERSEDED BY P/N                      MODIFY**

The item is superseded by a new design, however, the superseded tool can be reworked to the new configuration by a bulletin or change. It may or may not be necessary to procure a Kit of parts to accomplish the modification.

Publications: In the numerical tool index the superseded tool as well as the superseding tool will be listed with a cross reference for each. Example:  
P/N OLD (Sup. by P/N NEW)

**8. SUPERSEDES P/N**

The part number of the superseded tool is shown after the superseding tool number. This will cross reference the new and the old tool.

Publications: In the numerical tool index the superseding tool as well as the superseded tool will be listed with a cross reference for each. Example:  
P/N NEW (Sup. OLD)

**9. REQUIRED FOR ENGINE CHANGE OR ENGINE BULLETIN NO.  
ONE TIME REWORK**

An item which is required to incorporate a Bulletin or Change and then no longer required.

Publications: The tool will not be listed in the engine publications. The Bulletin or Change shall list the tool and describe it as necessary.

**10. REQUIRED FOR ENGINE CHANGE OR ENGINE BULLETIN NO.  
CONTINUOUS REQUIREMENT**

The engine Change or Bulletin requires this item. The tool is required on a continuous basis after the Change or Bulletin is incorporated.

Publications: The tool will be listed in the publications at time of next revision after the tool is approved.

**11. SOURCE CODE MO OR MF**

An item which is manufactured by the Navy in accordance with existing instructions. The source code will appear in the Bureau of Naval Weapons' List of Approved Special Support Equipment.

Publications: The special tool will be listed.

When an item is to be fabricated locally to satisfy an engine Bulletin or Change, a sketch, giving sufficient details for local manufacture, shall be included in the Bulletin or Change.

**12. TECHNICALLY APPROVED — NO PROCUREMENT AUTHORIZED**

Used on tools that are for overhaul only and in cases where the engine and/or accessory is not being overhauled by the Navy. Overhaul may be commercially or by another military service.

Publications: The tool will be listed in the publications.

*Figure 4-32. CATEGORIES OF PGSE (SHEET 2)*

aircraft or airborne system affects existing GSE, or requires new GSE, the GSE items may be budgeted and funded as part of the OSIP item. (This is analogous to an aircraft companion ECP for GSE.)

AIR-534 is responsible for the preparation and submission of ground support equipment OSIP justification forms (Figures 4-33 and 4-34) for each item to be recommended. Recommendations may result from service-revealed deficiencies, engineering analysis, etc.

Upon receipt of the recommendations for OSIP items from the various AIR-05 organizations, AIR-10411 submits the combined list (including GSE) to the CNO. After reviewing the list, CNO approves or disapproves the list in total or part. The CNO-approved OSIP items are then funded and NAVAIR may obligate funds against ECPs to effect the necessary modifications.

#### **4.4.2 Modification Kits**

Modification kits should be distinguished from overhaul kits; the latter are required as a part of normal maintenance and therefore must be scheduled and under the control of the appropriate Inventory Control Point (ICP), (e.g., Aviation Supply Office, Ships Parts Control Center, etc.). In general, modification kits are only required as a result of ECP approval. Modification kits may include parts kits, special provisions kits, and installation tool kits.

##### **4.4.2.1 Authorization**

As stated in AR-41, modification kits are authorized (when required) as a result of approval of an ECP. Included in the approval authorization will be the requirement for full consideration of all the elements of ILS, including technical directives (TDs, see Section 4.4.6), kits, GSE, spares, repair parts, trainers, technical manuals, training, ground or flight test, and interim support.

##### **4.4.2.2 Identification**

Kits are issued for one-time installation and therefore are not considered items of supply or within the scope of the FSN processes of the Federal cataloging program. Consequently, Kit Control Numbers (KCNs) are assigned in lieu of FSNs for purposes of identification, requisitioning, and reporting.

As described in AR-41, kit control numbers shall not exceed 16 characters. In those instances in which a number constructed in accordance with the rules exceeds this limitation, dashes will be progressively removed until the 16-character limitation is reached. KCNs shall consist of the elements outlined below:

- The letter V indicating NAVAIRSYSCOM cognizance.
- The two-digit processing code representative of the title of the TD. Processing Codes and Title Abbreviations are as shown in Table 4-5.



1. Designation Number and Priority: \_\_\_\_\_/\_\_\_\_\_
2. Name of Item:
3. Cognizant OP \_\_\_\_\_
4. Type and number of aircraft involved:
5. Item description:
6. Item justification:
7. Item cost:

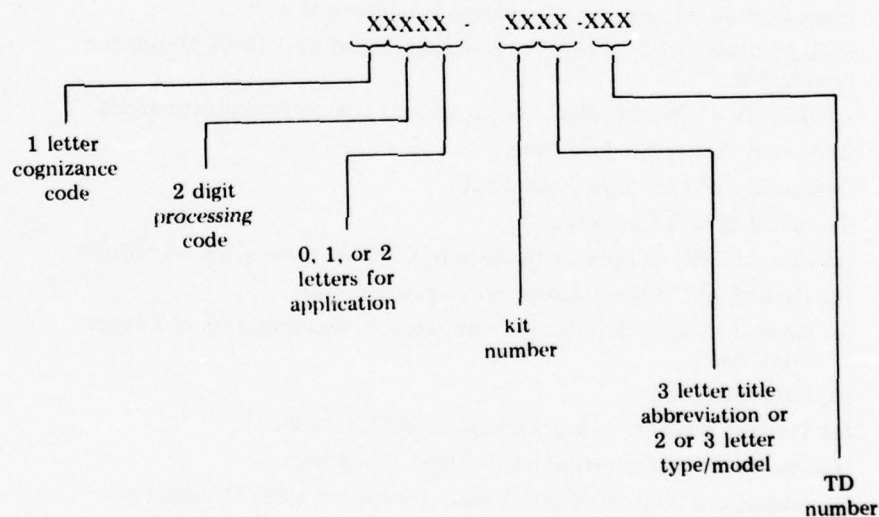
**Figure 4-33. OPERATIONAL AND SAFETY IMPROVEMENT PROGRAM JUSTIFICATION (PART I) (AIRCRAFT)**

1. Name of Item.
2. Cognizant Engineer. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_  
name code telephone ext.
3. Identification of item and equipment it replaces, if any.
4. Estimated date equipment will be recommended by AIR-05 Group for production.
5. Availability of Specification, etc., to permit competitive procurement.
6. Estimated Production lead time.
7. Desirability of Pilot Line Production.
8. Estimated Cost Information.
  - (a) Cost of GFE equipment (itemize if more than one system involved)
  - (b) Cost of AFC Kits including non-recurring costs.
  - (c) Ground Support Equipment requirements including Special Support Equipment.
  - (d) Publication costs.
  - (e) Training costs (including changes to NAMT or WST).
9. Number of man hours required to install the change.
10. Recommended method of installation. (Squadron level, Overhaul and Repair Department or Field Team)
11. Current R&D status including evaluation.

**Figure 4-34. OPERATIONAL AND SAFETY IMPROVEMENT PROGRAM JUSTIFICATION (PART II) (AIRCRAFT)**

Table 4-5. TD PROCESSING CODES AND ABBREVIATIONS		
Type of Technical Directives	Code	Abbreviation
Accessory	61	AYC
Airborne Weapon	75	AWC
Aircrew System	66	ACC
Airframe	50	*AFC
Aviation Armament	56	AAC
Avionics	54	AVC
Meteorological Equipment	73	MEC
Photographic	68	PHC
Power Plant	02	*PPC
Propellers	64	PRC
Ground Support Equipment	62	SEC
Target Control System	77	TCC
* These abbreviations are not to be utilized in kit control numbers. For airframe and power plants kits, the basic type and model is used; e.g., A7, C121, J57, TF30.		

An identifier to distinguish between kits applicable to the same TD is shown below:



- (1) Kits for basic equipment shall be identified numerically, beginning with the number 1.

- (2) Kits for spares shall be identified alphabetically, beginning with the letter A.
- (3) Kits for other applications shall be identified alphabetically to indicate application, and numerically (beginning with Number 1) to indicate different kits within the same application. Application identifiers are as follows:

- (a) Naval Air Maintenance Trainer — MT
- (b) Special Provisions — S
- (c) Installation Tools — T

- The abbreviation for the TD Title. For airframe and power plant TDs, the basic type and model shall be used. For all other TDs, the appropriate three-position abbreviation.
- The number of the TD, including revision or amendment suffixes, when applicable. (When revisions or amendment suffixes are applicable, they shall be reflected by the basic TD number followed by a dash and the appropriate alphabetical or numerical designator of the revision or amendment.) KCNs shall not be changed to include amendment or revision suffixes unless additional or different parts are required by the amendment or revision.
- Dashes shall be used in the KCN as follows:
  - (1) Immediately following the two digit processing code for kits applicable to basic equipment; immediately following the alphabetical identifier for spares kits and other application kits.
  - (2) Immediately following the TD title abbreviation.
  - (3) When applicable, to separate revision or amendment designators from the basic TD number.

Examples of Kit Control Numbers are as follows:

V50-1F4-327:	Parts Kit 1 for F-4 Airframe Change 327.
V50A-F4-327:	Parts Kit A for spares on F-4 Airframe Change 327.
V50MT-1F4-327:	Parts Kit 1 for NAMTs on F-4 Airframe Change 327.
V50S-1F4-327:	Special provisions kit 1 for F-4 Airframe Change 327.
V50T-1F4-327:	Special tools kit 1 for Airframe Change 327.
V02-1J79-104:	Parts kit 1 for J79 Power Plant Change 104.
V54-1AVC-248:	Parts kit 1 for Avionics Change 248.
V54MT-1AVC-248:	Parts kit 1 for Naval Air Maintenance Trainer on Avionics Change 248.
V50-1F4-327-A:	Parts kit 1 for F-4 Airframe Change 327, Revision A.
V50-1F4-327-1	Parts kit 1 for F-4 Airframe Change 327, Amendment 1.
V62-1SEC-775:	Parts Kit 1 for Ground Support Equipment Change 775.



#### **4.4.2.3 Packaging**

Packaging of modification kits for electronic components must be in accordance with MIL-E-17555G. Packaging of other materials must be in accordance with other applicable Federal or Military Specifications.

#### **4.4.2.4 Contents**

Insofar as practical, kits which will be delivered to the Navy shall contain all the hardware and information required to incorporate modifications.

Except as noted below, kits shall contain all material required to accomplish the modification (or part of the modification if the TD is being issued in parts) in one affected article so that requisitioning or local fabrication can be kept to a minimum. Additionally, each kit shall contain one copy of the approved TD.

Kits shall not contain shelf-life items, explosives, or flammable or other hazardous materials that require extraordinary packaging and handling techniques. Local stock items, or items to be fabricated from local stock material, may also be excluded when specifically authorized by NAVAIR. When local fabrication of items is authorized, the items excluded from kits shall be limited to those that are within the maintenance capability of incorporating activities and complete instructions for the fabrication of such items shall be included in the TD. Other items may be excluded from kits when authorized by NAVAIR for reasons of cost or impracticality, for example, when unit of issue greatly exceeds the quantity required.

Kits shall be provided in the minimum of configurations, consistent with economy and need. If the individual differences in detailed material requirements between affected article configurations are insignificant in range and cost, a single standardized kit shall be provided.

Kits to retrofit Naval Air Maintenance Trainers (NAMT) shall consist of selected parts, materials, additional training units or panels, graphic aids, and other data as specified in MIL-T-7755.

**Special Provision Kits.** Special provision kits shall contain that equipment which is required to complete the incorporation of the TD but which is installed only when performing a special mission.

**Installation Tools Kits.** Kits shall contain those special tools and equipment required to incorporate the change which are not otherwise available, have no continuing application, and are not feasible for local fabrication.

#### **4.4.2.5 Quantities Control**

The NAVAIR Acquisition Manager of the item being modified, with the assistance of his corresponding APM(L), shall determine total kit quantity requirements prior to approval of a proposed change.

The quantity determination may be based on fiscal limitations, program restrictions, or the requirement to modify all basic equipment in accordance with a preliminary installation plan. It shall be the responsibility of the Acquisition Manager, with the assistance of the APM(L) to determine the appropriate quantities. If the exact point of production effectivity cannot be determined at the time of CCB approval, reasonable latitude will be permitted in determining the quantities.

When incorporation of a TD is planned over an extended period, consideration shall be given to multi-year procurement/manufacture of kits. If this is determined to be cost effective, kits shall be for the quantity required to support modification for a calendar year as computed from the incorporation schedule specified in the TD. Quantities for the last full year and the remaining portion of the subsequent year shall be recalculated prior to the start of the period.

A trainer kit shall be required for each affected NAMT panel where complete fleet modification of basic equipment is planned. Where modification of the trainer is not feasible, new trainers shall be provided. When only partial modification of basic equipment is planned and a dual configuration must be supported, kits, or new trainers, shall be furnished in the appropriate ratio.

Kit quantities for spares shall be determined in coordination with the cognizant ICP and shall be computed and manufactured in the same manner as quantities for basic equipment. The AIR-04 AMP(L) has the responsibility for obtaining kit requirements to modify spares.

The quantity of special provisions kits shall be dictated by the needs of the program which prompted the change.

A minimum quantity of installation tool kits shall be authorized in consideration of cost effectiveness, the level of maintenance, the number of installing activities, and the incorporation schedule.

If the original quantity of kits allocated and delivered to the supply points has been exhausted and additional kits are required to complete the modification of affected articles, the kit manager (the NAVAIRSYSCOMREP designated kit management responsibility in accordance with NAVAIRINST 4720.1) for the equipment involved shall initiate and coordinate comprehensive screening action for redistribution of assets. If the result of screening is negative, or produces an insufficient quantity, the kit manager shall request NAVAIR to provide the additional quantity required. NAVAIRSYSCOMREPLANT is the manager for GSE modification kits.

Timely and accurate information concerning delivery of TDs and related elements is required to pre-plan, schedule, control, and support approved modification programs. To effectively implement a systematic, uniform, and comprehensive reporting system, the Technical Directive Kit Shipment Report, NAVAIR 13053/1, will be used where contractually required or directed by NAVAIR to provide the required planning data. Activities authorized by COMNAVAIR to prepare TDs and related actions shall prepare a Kit Shipment Report for each TD where such requirements are applicable. (Kit Shipment Reports are usually more expensive for GSE than their value to the manager, and therefore are not required.)

Reports shall include the status of all elements authorized and related to each TD. A separate page or series of pages shall be used for each directive. Complete heading information is mandatory only on the first page. Figure 4-35 illustrates typical data on NAVAIR Form 13053/1 for one item in an initial, second, and subsequent reports. Detailed instructions for completing and distributing the Kit Shipment Report are contained in AR-41.

The initial Kit Shipment Report shall be prepared at the end of the first full calendar month following the date of authorization to proceed. Thereafter, a report shall be prepared





for each month in which changes occur. These succeeding reports shall include only those pages which contain superseding data. The cognizant Kit Manager may request annually a complete, updated, basic report in lieu of a regular monthly report.

#### **4.4.3 Design Suitability, Utilization, and Nonavailability of GSE**

##### **4.4.3.1 Background**

After design, development, test, and evaluation of ground support equipment, it is approved for service use and the Navy arranges for its delivery to the Operating Fleet. NATC or the operating forces advise NAVAIRSYSCOMHQ regarding the availability of the required GSE and whether it is actually capable of performing its function as specified.

Often, an end article is delivered to the fleet without the full complement of GSE. This sometimes causes the mission to be jeopardized and in all cases results in inefficient support. Timely reporting of such instances by the Fleet and quick reaction by NAVAIRSYSCOMHQ is necessary to provide optimum support.

Also, items of GSE are sometimes unsuitable for use due to some design deficiency which may have been overlooked during the development, test, and evaluation phases. This should not occur if an adequate design, development, test, and evaluation program is conducted, but it is a possibility. It is incumbent upon NATC or the operating forces to advise NAVAIRSYSCOMHQ of any problem as soon as possible. It is then NAVAIRSYSCOMHQ's responsibility to effect the necessary changes to eliminate the deficiency.

##### **4.4.3.2 Responsibility**

The identification of problems relative to availability or design suitability or utilization of GSE is the responsibility of the operating or reporting activities using the equipment. The Commanding Officer of the operating or reporting activity forwards descriptions of problems and suggestions for improvement to NAVAIRSYSCOMHQ through the chain of command. If the problem is a threat to safety, it should be reported on a safety unsatisfactory material/condition report. This safety UR will be directed to NAVAIRSYSCOMHQ (Code AIR-417) who will take appropriate action as outlined in Section 4.4.5.

If the problem is causing degradation of mission requirements, systems availability, etc., the operating command will advise NAVAIRSYSCOMHQ by a means consistent with the urgency of the problem.

The chain of command for reporting nonavailability of GSE or suitability/utilization of GSE design normally includes the cognizant NAVAIRSYSCOMREP. The Fleet Support Department of the cognizant NAVAIRSYSCOMREP is responsible for acting as liaison between NAVAIRSYSCOM and the Type Commanders or Air Station regarding problems associated with the maintenance, repair, suitability, and availability of GSE. Many problems can be resolved at the NAVAIRSYSCOMREP level. NAEC(SE) is NAVAIR's primary field activity for GSE and has engineering cognizance for most GSE items. Accordingly, this activity should receive most reports or inquiries from the NAVAIRSYSCOMREPs. When NAVAIRSYSCOMREP action is required, AIR-417 is the reception point for all fleet inputs on design, suitability, utilization, or nonavailability of GSE.

If NAVAIR-cognizant GSE is not available, AIR-417 must inquire of the cognizant engineer in AIR-534 whether appropriate procurement action has been taken. If the GSE

item is an "R" cognizance code, and funds have not been allocated to the ICP, AIR-534 must take appropriate action to obtain the funds and have them allocated to the ICP. The ICP is then responsible for the procurement and distribution of the equipment.

If the problem is attributable to some cause other than funding, the cognizant inventory control manager in AIR-4125 is responsible for finding the cause and enacting a solution. AIR-417 is responsible for monitoring all NAVAIRSYSCOMHQ activities and assuring that the problem is resolved.

AIR-534 receives fleet inputs on GSE that is incapable of performing its intended function because of inadequate design. AIR-534 is responsible in such cases for taking the necessary action to resolve the problem. Such action might be the issuance and incorporation of an ECP.

The fleet input which informs AIR-534 of the design problem may be backed up by an ECP. In such cases, AIR-417 and AIR-534 review the proposed change and take the required action as outlined in Section 4.3.4.

Before the incorporation of any design change, however, AIR-417 must determine whether the problem can be solved by changes in procedures, training, technical manuals, etc.

#### **4.4.4 Unsatisfactory Material/Condition Reporting System (UR)**

##### **4.4.4.1 Background**

The Naval Air Systems Command Unsatisfactory Material/Condition Reporting System is designed for rapid collection and for dissemination of unsatisfactory material condition reports (UR) to the governmental and industrial activities responsible for providing prompt corrective action in the case of serious material discrepancies or operational maintenance problems. The UR System also is designed to assist in the replacement or correction of defective new material furnished to the Navy. This system also utilizes the UR form for reporting errors and omissions and for making recommended corrections to publications.

NAVAIR Form 13070/5 is used in this system except in the case of Safety Unsatisfactory Material Condition Message Reports. Safety UR messages are prepared TWX format, as described in Chapter 4, Paragraph 1515, of NAVAIRINST 4700.2. A sample Form 13070/5 is shown in Figure 4-36.

Copies of all URs are forwarded to the Naval Air Technical Services Facility (NATSF), 700 Robbins Avenue, Philadelphia, Pennsylvania 19111. NATSF, in turn, forwards copies to the various participating agencies.

##### **4.4.4.2 Participating Agencies**

###### **4.4.4.2.1 Naval Air Systems Command Headquarters**

NAVAIRSYSCOMHQ is responsible for the establishment and maintenance of the Unsatisfactory Material/Condition Reporting System and coordination of efforts to correct material deficiencies to improve flight safety, operational utility, maintainability, and logistic support for operating systems. The various technical divisions of NAVAIRSYSCOM review URs and initiate corrective actions to improve aircraft or equipment performance, quality, maintainability, and reliability.

UR

## UNSATISFACTORY MATERIAL/CONDITION REPORT

UR

(Use typewriter or ball point pen.)

Report Symbol **NAVAIR 13070-5**

1. REPORTING ACTIVITY VF-121	2. LOCATION NAS Miramar	3. SER. NO. 0038	4. DATE OF TROUBLE 2-10-67	5. REPORT CATEGORY <input checked="" type="checkbox"/> SPECIAL <input type="checkbox"/> SAFETY	6. MSG DTG
7. INSTALLED ON (Type Aircraft/Ship/Support Equip. etc.) F4B	8. BUREAU/SERIAL/HULL NO. 150621	9. TECHNICAL DATA DEFICIENCY/TECHNICAL DATA IDENTIFICATION (Amplify in space 29) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
10. JOB CONTROL NUMBER ORG. DATE SER. NO. INST. PEL 7041 229	11. MAINT. CONTROL NUMBER	12. WUC/ETC 23K83.12	13. TYPE EQUIP. JRJA	14. FOLLOW-UP REPORT <input type="checkbox"/>	

DEFICIENT ITEM DATA			
15. MANUFACTURER'S PART NO. 643G11582	16. NOMENCLATURE Blade, Turbine	17. SERIAL	18. QUANTITY 1
19. FEDERAL STOCK NO. (FSN) R2840-871-0760-PGEC	20. FEDERAL MFR'S CODE 07482	21. CONTRACT NO. N383-84648A	22. MILITARY/COMMERCIAL OVERHAUL ACTIVITY HAS NORIS (NAVAIREWORKFAC)
23. TIME SINCE NEW 378.0	24. TIME SINCE OVERHAUL 75.0	25. NUMBER OF EVENTS (Cycles, starts, etc.)	

26. INSTALLED ON (Indicate major component and end item on which defective item is installed or applicable to)

PART NUMBER	NOMENCLATURE	TYPE/MODEL & SERIES	SERIAL NUMBER	
SYSTEM/ EQUIPMENT/ ENGINE, ETC.	J79G38A	Engine, Turbo Jet	J79GE8A	401230
UNIT/ COMPONENT OR EQUIPAGE	696D113G4	Rotor Assy		7629G
SUBASSEMBLY	619E346P5	Wheel, Turbine		82652

27. REASON FOR REPORT (Place X in proper box)	1 <input checked="" type="checkbox"/> FAILURE/SUSPECTED FAILURE OR MALFUNCTION	2 <input type="checkbox"/> DAMAGED DUE TO IMPROPER MAINTENANCE/ OPERATION/TEST	3 <input type="checkbox"/> DAMAGED OR DEFECTIVE ON RECEIPT	4 <input type="checkbox"/> CAN BE INSTALLED WRONG
28. DISPOSITION (Place X in proper box)	1 <input type="checkbox"/> HOLDING 90 DAYS FOR INVESTIGATION	2 <input checked="" type="checkbox"/> RELEASED FOR INVESTIGATION (Amplify in Space 29)	3 <input type="checkbox"/> REPAIRED MADE RFI (Amplify in Space 29)	4 <input type="checkbox"/> RETURNED TO SUPPLY/ DISPOSED OF (Amplify in Space 29)

29. AMPLIFYING DETAILS (1. Circumstances prior to difficulty; 2. Description of difficulty; 3. Cause; 4. Action taken; 5. Recommendations.)

- During ground turnup, engine RPM at 90%, a loud explosion was heard with subsequent high EGT. Engine was immediately shut down.
- Preliminary inspection of engine revealed damaged turbine exit guide vanes. Upon disassembly of the turbine section, it was found that turbine blade, P/N 643E115P2, had broken at the blade root. (See enclosed photographs.)
- Inspection of blade root revealed a possible fatigue crack.
- Engine forwarded to NAVAIREWORKFAC North Island for priority DIR in accordance with NAVAIRSTYSCOMREPAC 100954Z Feb 1967.
- It is recommended that the overhaul activity conduct a complete analysis to determine the cause of failure.

(If additional space is required, tear out and reverse carbons. Use reverse side. Use typewriter or ball point pen.)

30. PREPARED BY R. R. Martin RANK/RATE ADJC DATE 2/10/67

APPROVED BY R. R. Martin RANK/RATE LCDR DATE 2/10/67

NAVAIR FORM 13070/5 (7-67)

Forward ORIGINAL to Naval Air Technical Services Facility, 700 Robbins Ave., Phila., Pa. 19111  
Retain one FILE copy for record purposes.  
Attach TAB copy (hard copy) to material being turned in to supply or released for investigation.

Figure 4-36. NAVAIR FORM 13070/5, UNSATISFACTORY MATERIAL/CONDITION REPORT



#### 4.4.4.2.2 Government Inspection Agencies

The government inspection agencies (NAVPLANTREOPs, NAVAIRSYSCOMREPs, Naval Air Systems Command Representatives in Charge, DCAS, GSA, etc.) are responsible for coordinating action on URs with cognizant contractors and vendors to ensure that timely and adequate action is initiated when necessary and that the rights of the government are protected under warranty and latent-defect clauses.

#### 4.4.4.2.3 Naval Air Systems Command Field Activities

- NAVAIRSYSCOMREPs are responsible for liaison with all fleet activities and shore-based facilities within their respective geographical area on matters concerning URs and for conducting appropriate investigations of material reported defective or unreliable.
- NAVAIRTECHSERVFAC (NATSF) is responsible for collecting, processing, analyzing, and distributing data received through the UR system for review and action by the cognizant activities.
- NAVAIRREWORKFACs (Naval Air Rework Facilities) are responsible for the submission of URs on design deficiencies or structural damage, corrosion, and other unusual conditions discovered during PAR (progressive aircraft rework), overhaul repair, etc., and on unsatisfactory material received from supply.
- Intermediate Maintenance Activities are responsible for submitting complete and accurate URs in cases involving design/material deficiencies of aeronautical material, when applicable, and for taking corrective action on URs pertaining to them when directed by higher authority.

#### 4.4.4.2.4 Operating or Reporting Activities

The operating or reporting activities are responsible for the submission of complete and accurate URs. NARFs and NASs are not operating or reporting activities.

#### 4.4.4.2.5 Supply Departments

The Supply Departments at Naval and Marine Corps Air Stations and on vessels are responsible for screening stocks of suspect defective materials when so directed by higher authority as a result of URs.

#### 4.4.4.2.6 ICPs

The Inventory Control Point (ASO, SPCC, etc.) takes appropriate technical, logistic, and contractual remedial action in connection with the reported material deficiencies.

#### 4.4.4.3 Processing of GSE URs

NAVAIRINST 4700.2 directs that URs be submitted to NATSF for processing. NATSF, in turn, sends all URs pertinent to GSE to AIR-417 with a copy to NAEC(SE). The following procedures apply to the processing of GSE URs.

1. NAVAIR (AIR-417) reviews each GSE UR and discusses applicable technical aspects with the appropriate NAVAIR (AIR-534) code to determine a course of action. This review may result in a referral by letter or message to NAILSC for update or revision of MRCs to NAEC for engineering investigation, or to other action agencies, as appropriate.

2. When GSE URs are forwarded by NAVAIR to NAEC or other appropriate field activity for investigation and action, a copy of the NAVAIR forwarding letter is sent to the UR originator. This copy serves to acknowledge receipt and provides an indication of planned action.
3. The Logistics Manager in NAVAIR (AIR-417) monitors processing of the UR to assure that all required actions are completed. If no action is to be taken on the UR and NAVAIR concurs, NAEC or other evaluating field activity advises the originator of this fact and the reasons therefore. If action is to be taken, for example, if an ECP, Bulletin, SEC, or MRC revision is to be prepared, this action will serve notice to the originator of final disposition of his UR.
4. Because NAEC has been designated the principal NAVAIR field activity for GSE, most GSE URs will be forwarded to NAEC for review and further action. NAEC should, in all cases, respond to NAVAIR either by message or letter (or by telephone for an interim response), indicating the recommended course of action. NAVAIR (AIR-417/AIR-534) must concur with the planned action before further action by NAEC. NAVAIR (AIR-417) will coordinate the action and task NAEC as necessary.
5. If URs concerning NAVAIR-cognizant GSE are sent erroneously to NAEC by the Fleet and other activities, NAEC will forward appropriate recommendations to NAVAIR (AIR-417) by letter or message.

#### **4.4.5 Technical Directives (SECs/SEBs)**

##### **4.4.5.1 General**

A support equipment technical directive authorizes the accomplishment and recording of modifications and one-time inspections of NAVAIRSYSCOM-accepted equipments, either in the contractor's or Navy's possession. Support equipment technical directives include either Support Equipment Changes (SECs) or Support Equipment Bulletins (SEBs). (The SECs involve changes to hardware and SEBs involve changes to technical manuals, MRCs, or other official publications.)

Technical Directives (TDs) for GSE result from changes required by prime-end-article configuration changes, or as improvements to the GSE's own hardware or method of application. The TD system is described in NAVAIRINST 5215.8, which establishes the policies and procedures for TDs. Interim Technical Directives (ITDs) are addressed in NAVAIRINST 5215.9 which states: "When the lead-time involved in the issuance of formal technical directives or manual revisions will not allow reaction within the requisite time frame, ITD's shall be promulgated as an interim measure."

##### **4.4.5.2 Definitions**

**Formal Technical Directive (TD)** — A formal technical directive is a document issued as a change or bulletin, or as an amendment or revision to a previous change or bulletin, promulgated by letter.

**Interim Technical Directive (ITD)** — An interim technical directive is a document issued as a change or bulletin (or as an amendment or revision to a previous change or bulletin) and promulgated by message or speedletter to ensure expeditious dissemination.

**Support Equipment Change (SEC)** — A support equipment change is a technical directive that describes a physical change to an existing item of support equipment.

**Support Equipment Bulletin (SEB)** — A support equipment bulletin is a technical directive prepared to describe some change involving an improvement or correction in maintenance, servicing, or operating procedures; inspections, calibrations, tests and adjustment requirements; or additional instructions on standard rework, etc., on items of support equipment.

The difference between an SEC and an SEB is simply that an SEC describes a physical hardware change and an SEB describes changes in procedures, operations, test requirements, etc., associated with support equipment which do not necessitate a hardware change.

A support equipment change (SEC) results from an ECP or other data requiring a change to an item of GSE. It describes the exact nature of the change and documents how the change is to be accomplished. It also describes the impact of the change on the various elements of logistics support (i.e., publications, maintenance level required for compliance, maintenance man-hours required for compliance, supply parts required, spare parts modification requirements, etc.).

#### 4.4.5.3 Responsibilities

*The Ground Support Equipment Engineers' Handbook*, Section 4.9, outlines the basic responsibilities for the preparation of SECs and SEBs. AIR-534 has the responsibility for authorizing the preparation of an SEB as stated in the Redbook. However, the procedures for an SEC were modified by the Joint Memorandum AIR-534/AIR-417A, dated 15 April 1970. These procedures are as follows:

##### Interim SECs

1. The cognizant AIR-534 GSE technical representative is responsible for preparing a draft of the Interim SEC. Coordination should be effected with the cognizant counterpart GSE Logistic Manager in AIR-417.
2. The Interim SEC draft is forwarded to the AIR-417 GSE Logistic Manager for coordination within AIR-04 and transmittal to the cognizant NAVAIRSYSCOMREP or field activity for verification in accordance with paragraph 6c(1) of NAVAIRINST 5215.9, unless verification is waived.
3. Upon completion of verification, or if verification is waived, the AIR-417 GSE Logistic Manager prepares the interim SEC in final smooth message format and forwards (or hand carries it) via AIR-417 to the GSE Program Manager for approval.
4. Upon approval of the GSE Program Manager, the interim SEC is returned to AIR-417 for signature and release.
5. The cognizant AIR-534 GSE technical representative is responsible for initiating the preparation of a formal TD that shall supercede the interim change within 90 days. The AIR-534 GSE technical representative may prepare the formal SEC himself, or may initiate action to have it prepared by an appropriate contractor or field activity. The processing approval and distribution of the formal TD will be performed in accordance with the procedures in AR-41.

##### Formal SECs

1. The "authorizing correspondence" prepared in accordance with Paragraph 3.1 of AR-41 which directs preparation of the SEC, will specify the SEC subject and number, category, cognizant NAVAIR organizational codes, application, projected



issue date, compliance data, and the activity designated to perform verification (unless the correspondence specifically waives verification or directs accomplishment combined with validation). In addition, all "authorizing correspondence" will specify SEC preparation and processing in accordance with AR-22 and AR-41. Certain paragraphs of AR-22 and AR-41 are not applicable to GSE items, therefore, these paragraphs must be included in the SEC and should be marked as "not applicable" by the preparing activity. If GSE modification kits are required to support the SEC, the authorizing correspondence should indicate that NAVAIRSYSCOMREPLANT is designated as the "kit manager" so that kits may be managed in accordance with NAVAIRINST 4720.1. Cognizant NAVAIRSYSCOMREPs shall be furnished copies of all authorizing correspondence. To ensure that new Federal Stock Numbers are obtained in a timely manner, the authorizing correspondence shall specifically request that ASO (or SPCC as appropriate) take immediate action to obtain required new FSNs when requested by the preparing activity.

2. The preparing activity (contractor or field activity) will validate the SEC (unless specifically waived by the authorizing correspondence) and submit revised engineering data to the cognizant Inventory Control Point (which will normally be ASO or SPCC). Requests for new Federal Stock Numbers should be made at this time by the preparing activity. The validation, if required, and the engineering/supply data will be submitted no later than 120 days prior to the projected issue date for the SEC.
3. Unless SEC verification is waived or accomplished simultaneously with validation, the SEC preparing activity will, no later than 105 days prior to the projected SEC issue date, forward two copies of the proposed SEC and one modification kit (when required) to the designated verification activity. (Validation is the process by which the preparing activity tests the technical directive for accuracy and adequacy. This is accomplished by actual performance of all the modification instructions, including, if applicable, incorporation of modification kit. Verification is the process by which a Naval activity tests the proposed technical directive for accuracy and adequacy. If specified in the authorizing correspondence, verification and validation may be performed simultaneously in cases where time or availability of equipment/facilities do not permit separate action, or where the likelihood of error is slight.)
4. The designated verification activity will, no later than 75 days prior to the issue date, verify the SEC and related modification kit (if applicable) and notify the preparing activity of the results. If unsatisfactory, the preparing activity will initiate action to correct the change.
5. Upon assurance that the SEC is correct, the preparing activity will, no later than 60 days prior to the projected issue date, complete the SEC master (suitable for reproduction, except for the issue date, recision date, and signature) and forward master and two copies, marked "Preliminary Copy," and annotated with the "projected issue date" to NAVAIRTECHSERVFAC. Simultaneously, "Preliminary Copies" of the SEC, annotated with the projected issue date shall be forwarded for review and planning purposes to the activities listed in Paragraph 3.4.1.5 of AR-41, unless specific direction is provided in the authorizing correspondence to delete certain activities or distribute in accordance with prescribed requirements. The procedures outlined in this subparagraph for submittal of SEC masters are in accordance with AR-41 and will eliminate contractor and field activity submittal of the SEC masters in NAVAIR for processing.

6. Upon receipt of Preliminary Copies of the SEC, the AIR-417 GSE Logistics Manager will, within 45 days prior to the projected issue date, assign a firm issue date as well as recision date, and advise NAVAIRTECHSERVAC. Other activities receiving Preliminary Copies will take action as indicated in paragraph 3.4.1.6 of AR-41.
7. After review, receipt of the firm issue and recision dates, and reasonable assurance that the SEC is correct, the COMNAVAIRTECHSERFAC (or his assignee) will sign and release the formal SEC.

#### 4.4.6 Value Engineering

##### 4.4.6.1 Definition and Policy

Value engineering is an organized effort directed at analyzing the function of systems, equipment, facilities, procedures, and supplies for the purpose of achieving the required function at the lowest total cost of ownership, consistent with the necessary requirements for performance, reliability, quality, and maintainability.

It is NAVAIR policy that value engineering (VE) methods and VE contract incentives shall be used throughout the Naval Air Systems Command and by the activities supported by NAVAIRSYSCOM. These methods and incentives are to be used on a continuing basis as a management discipline to assure that value and cost receive appropriate consideration in the total life cycle of systems, equipments, facilities, etc.

Contract provisions for VE incentives are specified in Armed Service Procurement Regulation (ASPR) Section I, Part 17.

All Value Engineering Change Proposals (VECPs) are to be given expeditious handling and processing to ensure that a normal turn-around time of 30 days is not exceeded.

##### 4.4.6.2 Responsibility

The overall management of the NAVAIR Value Engineering Program is the responsibility of the Deputy Commander for Plans and Programs and Comptroller (AIR-01). The daily management is provided by AIR-01A5. AIR-01A5 is responsible for establishing the NAVAIRSYSCOM VE program objectives and goals; reviewing, interpreting, and implementing VE directives, regulations, and policies from higher authority; and establishing liaison with other commands and activities.

The Assistant Commander for Material Acquisition (AIR-05) is responsible for supporting AIR-01 in VE efforts during the acquisition phase of systems, equipments, facilities, etc. Accordingly, the various Divisions within the Material Acquisition Group are responsible for VE training programs, R&D type VE studies, coordinating, analyzing, and appraising the VE programs being conducted on the systems under their cognizance. AIR-534, for example, has these responsibilities for GSE.

Within the various commodity offices of the Logistics/Fleet Support Group (AIR-04), lies the responsibility for implementing the VE program policies and procedures and establishing controls, reporting procedures, and methods for managing and coordinating the VE program in connection with logistic and support matters. Accordingly, VE programs are appraised and evaluated by the cognizant APM(L)s in AIR-04. AIR-417 is responsible for these functions relative to GSE.

#### 4.4.6.3 Value Engineering for Ground Support Equipment

Since GSE represents a sizeable investment in the inventory of NAVAIR equipment, it is important that VE programs be conducted. The GSE APM(L) should constantly be alert for areas where a VE program could yield potential cost savings. He should review 3M data to ascertain where the bulk of maintenance man-hours for the equipment under his cognizance is expended and seek VE programs for reducing the costs. During the acquisition phase, it is necessary to assure that any contracts, PRs, MIPRS, etc., contain applicable clauses which would allow the Navy to secure the required VE support.

When a VE program is established, the GSE APM(L) should conduct a thorough analysis of the impact of the effort. This can be done by a comprehensive analysis and comparison of the 3M data collected before and after the implementation of the VE Program.

Guidance in the establishment and monitoring of a VE program can be found in the *Navy Cost Reduction Program Manual*, NAPSO P-2486 (June 1967).

#### 4.4.7 Repair of Support Equipment

##### 4.4.7.1 Policy

GSE is to be maintained and repaired to the same extent as aircraft and aircraft equipment. In view of the high initial cost and replacement cost of most items of GSE, the Naval Air Systems Command cannot afford to have GSE held in need of repair. Therefore, maximum effort must be exerted to ensure timely and complete field repair so that full investment will be realized. A major portion of the responsibility for ensuring that GSE is maintained in satisfactory operating condition rests with the user. Maintenance and repair is to be accomplished in accordance with the maintenance plan, or the Plan to Maintain developed under the jurisdiction of AIR-417. The final responsibility for ensuring that timely and adequate maintenance and repair are performed on GSE rests with the activity assigned prime custody of the equipment.

##### 4.4.7.2 Procedure

In an effort to provide adequate funds for the maintenance and repair of GSE, NAVAIR has established a special account for that purpose. GSE equipment may be in the custody of Shore Station Aircraft Maintenance Departments and Divisions, or Navy Squadrons, or it may be aircraft maintenance support equipment which is returned from ships. These funds from the special account supplement normal station funds allocated for routine maintenance and upkeep.

NAVAIR (AIR-417) issues Weapons Ground Support Equipment Maintenance Allotment Funds for the maintenance and repair of GSE which is used by, or is in custody of, Shore Station Aircraft Maintenance Departments and Divisions and Navy Squadrons or which is returned from ships. GSE which is held organizationally, on custody, plant account, or in pools, is included. The Weapons Ground Support Equipment Maintenance Allotment Funds may be utilized to cover the following:

- (1) Civilian labor, whether the work is solely or jointly accomplished by Shore Station/Aircraft Maintenance Departments/Divisions, Public Works Departments/Centers, or Navy Squadrons.



- (2) Repair parts [exclusive of Appropriation Purchase Account (APA) material], whether furnished by or for Shore Station Aircraft Maintenance Departments/Divisions, Public Works Departments/Centers, or Navy Squadrons.
- (3) Work authorized and accomplished commercially.

The Weapons Ground Support Equipment Maintenance Allotment Funds will not be used for the following:

- (1) Operational costs; that is, utilities, fuel, lubricants, etc.
- (2) Costs of maintenance, repair, or overhaul performed for or by Class "D" Major Rework Activities (NARF), whether accomplished on a scheduled basis or by customer service. Any costs incurred in connection with the foregoing are properly chargeable to Aircraft Rework.
- (3) Costs of maintenance and repair performed for or by deployable Air Fleet Marine Force Activities. These costs are chargeable to funds provided for the operation and maintenance of Marine Section "M" Expeditionary Equipment.
- (4) Maintenance and repair of any equipment not authorized on the IMRL (even though the equipments may be similar), unless specifically approved by NAVAIR (AIR-417).
- (5) Procurement of end items of equipment unless specifically approved by NAVAIR (AIR-417).
- (6) Procurement of single replacement components or assemblies costing in excess of \$500.00, unless specifically approved by NAVAIR (AIR-417).

Weapons Ground Support Equipment Maintenance Allotment Funds will be furnished by NAVAIR to:

- (1) NAVAIRSYSCOMREPLANT
- (2) NAVAIRSYSCOMREPAC

Each NAVAIRSYSCOMREP is authorized to issue subdivision of the Weapons Ground Support Equipment Maintenance Allotment Funds to shore activities providing support material and/or maintenance and repair services. Issuance of the subdivision will normally be accomplished on a Request for Performance of Work (NAVCOMPT Form 140); description of work should be titled, "Maintenance and Repair of Weapons Ground Support Equipment." In addition, authorization for work meeting the criteria specified in NAVCOMPT Manual, Volume 2, for Project Orders, should be issued on a NAVCOMPT Form 2053. The subdivision authorization document should cite data similar to that provided in the allotment authorization issued by NAVAIR to the NAVAIRSYSCOMREP, viz., the dollar amount, time period, accounting information, and scope (that is, types of transactions and requirements covered).

Funds will be provided to NAVAIRSYSCOMREPs by NAVAIR on a quarterly basis and will be requested by NAVAIRSYSCOMREPs 30 days before the new quarter. The subdivision of funds will be issued directly to shore activities by the cognizant NAVAIRSYSCOMREPs. Requests for funds by shore stations or squadrons shall not be made directly to NAVAIR. NAVAIRSYSCOMREPs will coordinate requirements, determine appropriate shore activities to receive funds, and issue detailed instructions concerning distribution, administration, use, and control of the funds.

Activities in receipt of allocations from the appropriate NAVAIRSYSCOMREPs for the maintenance and repair of aircraft maintenance support equipment are to assign such funds in a manner that will provide material and work accomplishment at the lowest maintenance level capable of utilizing the material or performing the work.

NAVAIRSYSCOMREPs shall solicit guidance from COMNAVAIRLANT, COMNAVAIRPAC, or CNATRA, as appropriate, to ensure direction of funds and effort to areas of primary concern.

#### 4.4.7.3 Responsibility

Within the Logistics/Fleet Support Group, the responsibility for determining the requirements for and issuing GSE Maintenance Allotment Funds rests with AIR-417. This responsibility requires an annual review of the requirements submitted through the NAVAIRSYSCOMREPs and their submittal as budget requirements under the Aircraft Rework Allotments.

#### 4.4.8 Local Engineering Directives

##### 4.4.8.1 General

Local Engineering Directives are prepared, issued, and implemented by NARFs in accordance with NAVAIRINST 5215.6A. These directives contain engineering information, instructions, and inspection criteria to support the depot-level rework of aeronautical weapon systems and associated equipments, including ground support equipment. Local Engineering Directives usually relieve NARFs of formal requirements so that they may continue the tasks of rework and repair. The directives may contain the following:

1. Engineering approval and authorization for the application of processes or procedures considered to be consistent with processes prescribed in NAVAIR-issued directives or manuals.
2. Engineering information which is not otherwise available in NAVAIR-approved directives or publications.
3. Authorization for material substitutions when such authorization is not in conflict with established NAVAIR policies or direction.
4. Information for the correction of errors in drawings, specifications, changes, bulletins, manuals, etc.
5. Detailed and specific information, instructions, engineering approval, clarification, etc., for technical information received by letter or message.
6. Engineering instructions or information concerning NAVAIRREWORKFAC inspection and acceptance criteria.
7. Engineering instructions or information and acceptance criteria for production equipment and facilities.
8. Engineering instructions prescribing reclamation procedures.
9. Test procedures for test equipment, support equipment, and production equipment.
10. Information concerning storage time limitations, nondestructive testing, preservation and packaging, and methods of plating, cleaning, welding, painting, etc.

#### 4.4.8.2 Directive Types

Local Engineering Directives are categorized as follows:

1. Temporary Engineering Instructions, which are for nonrecurring rework; a "one time" arrangement as for experimental or evaluation projects.
2. Local Engineering Specifications, which are permanent directives used as a basis for revising, correcting, clarifying, simplifying, or improving a NAVAIR publication, change, bulletin, or manufacturer or contractor drawing or specification. They should be considered as instruments or procedures to effect local changes in existing data or to introduce new data.
3. Local Process Specifications, which are permanent directives that specify processes applicable to shop practices, methods, and procedures necessary for weapon system and related equipment rework. These directives provide information or instructions pertaining to storage-time limitations, preservation and packaging, methods of plating, cleaning, welding, painting, and the handling and use of various materials. They are not to be used as specifications for modifying a process contained in a technical manual listed in the NAVAIR-00-500A index.

#### 4.4.8.3 Review

It is the intent of NAVAIRAIRSYSCOMHQ to delegate to the NAVAIRREWORKFACs as much freedom as possible to exercise engineering judgment and make decisions through the local engineering/process specification system. NAVAIR, or the field activity assigned engineering cognizance, is responsible for reviewing these directives and taking the necessary final action promptly. The established review procedures enable NAVAIR, the activity assigned engineering cognizance, and NATSF to relate these directives to affected publications and drawings, permitting timely issue of changes and revisions. The review procedures also allow the activities named above to keep abreast of the technical engineering problems and provide a means for other NARFs to benefit from the solution of common problems.

AIR-417 shall review all Local Engineering Directives applicable to GSE. The assigned engineering-cognizance activity will review the local engineering/process specification within 30 calendar days of the date of mailing. Approval is granted automatically at the end of this time unless correspondence to the contrary is issued by NAVAIR or its designated representative.

### 4.5 SUPPLY

#### 4.5.1 Introduction

Supply is an element of Naval material logistic support which consists of the development, acquisition, storage, distribution, and maintenance of material to equip and support the Naval forces. The "Naval Supply System" is the term applied to the aggregate of functions by which the Navy is supplied; it is not limited to the functions of the Supply Systems Command, but encompasses all Naval supply activity at all levels.

The formal supply organization with which the AIR-417 GSE Logician has most frequent contact is the Aviation Supply Office (ASO), but he may also have to contact other formal organizations such as the Ships Parts Control Center (SPCC). The formal



supply organizations handle the processes involved in supply support for established, stable items. By application of the principle of management by exception, the staff of NAVAIRSYSCOMHQ concerns itself only with those areas that are not amenable to the standard procedures.

To respond effectively to the needs for exceptional management, the GSE Logistician should understand the functions of the supply system under normal conditions. This Section treats the Supply Support Structure of the Navy as a whole, then covers the generation of material requirements, the formal processes of developing plans to meet these requirements, and principal aviation support processes. The type of intervention most likely to be required of the GSE Logistician is indicated.

Organizational arrangements and the specification of responsibilities within NAVAIR have been omitted to preclude obsolescence of the section when changes occur. For current information, consult the latest mission statement and organization chart.

#### 4.5.2 The Supply Support Structure

Chapter 2 explains how logistics policy and procedural directives developed by the Secretary of Defense are passed to the military Services and tailored to specific missions and organizational structures. The Secretary of the Navy, assisted by the ASN, Installation and Logistics (I&L), develops corresponding Navy logistic policy and directives and passes them via the CNO to the Fleet Commanders and the Chief of Naval Material. Within NAVMAT, they are further developed and promulgated by the CNM in the form of NAVMAT Instructions addressed to the various material commands. NAVAIR and Naval Supply Systems Command (NAVSUP) Instructions are those with which the GSE Logistician will be concerned.

In addition to receiving broad policy direction from above, the SECNAV and the CNO generate detailed policies to fit the constantly changing internal needs of the Navy. The transition from logistic policies to organizational arrangements and procedures that will economically and effectively implement the policies is made at the major command levels. The detailed execution of the prescribed procedures begins at the major commands and carries through every structural level of the Navy.

The conventional view of the division of responsibilities pictures the SECNAV and CNO as the policy makers, NAVMAT/Fleet Commander as the translators of policy into procedures, and NAVAIR, ASO, and SPCC as performing the functions involving actual material. These distinctions contribute to an understanding of command responsibility for supply; however, in practice, the command aspects merge with performance in daily routine of supply activity at the command levels, because the necessity for continual communication and coordination, brings all activities into a working pattern. The GSE Logistician may be required to advise on a force-level GSE policy directive in conference with OPNAV representatives, or to help to draft portions of a NAVMAT directive for improving acceptance test procedures for a specific type of GSE, or to determine numbers of spare parts kits to be procured for interim support of a new item of GSE, thus contributing to the working pattern in many areas of responsibility.

Just as the Navy itself is a composite warfare system, the system which keeps it supplied is also a composite — of material, personnel, and facilities, processes and organizations; and

various levels and varieties of activities, all working together toward the common objective of meeting customer needs.

The total supply support structure is depicted in Figure 4-37\*.

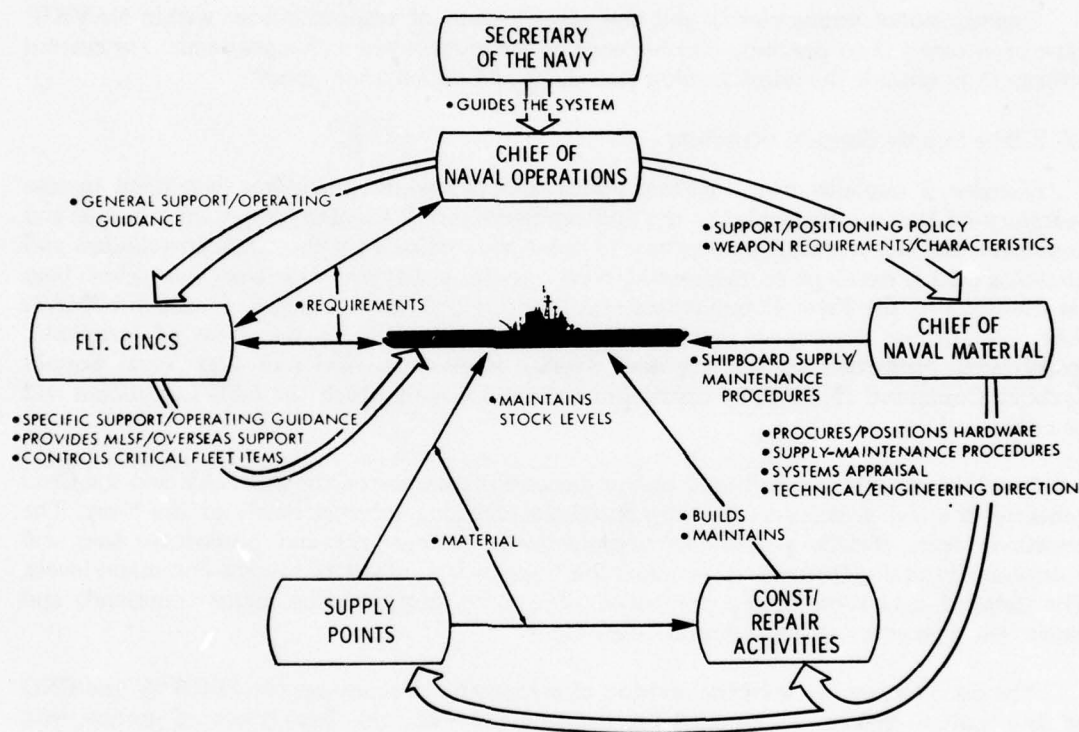


Figure 4-37. THE SUPPLY SUPPORT STRUCTURE

\*The illustrations and portions of the text of this section are adapted from NAVPERS 10487, Supplying the Navy, 1967.

#### 4.5.3 Generation of Material Requirements

Material requirements for weapon systems, weapons, equipment, and support material derive from operational concepts, program direction, and logistics guidance originated by the CNO. Material requirements are stated in general terms, and take into consideration the constraints of the force levels and budgetary limitations contained in the FYDP. Logistic guidance and supply support policy is expressed in number of days endurance to be provided to support designated forces at a prescribed tempo of operations or consumption rate.

Within the Office of the CNO, the Deputy CNO for Air has primary responsibility for stating the characteristics, capabilities, quantity, and support requirements, both qualitative and quantitative, for aircraft. Qualitative requirements are given in general terms by stating the size, speed, and military capability of an aircraft; the range and mission of a missile; and the range and target-acquisition capability of a radar. Quantitative requirements, such as the number of aircraft or major equipments to be procured and supported; aircraft ordnance loads; sortie rates; or number of missions to be supported; are stated specifically.

The generation of material-requirements statements requires the coordinated efforts of representatives of the CNO, the CNM, and the Fleet Commanders in Chief. Each potential requirement for material is the concern of a sponsor in OPNAV, a program manager in the NMC, and a customer or user in the Operating Forces. Through close cooperation, involving extensive exchange of information and continuing program evaluation, material needs are developed to the point at which the CNO can state a firm material requirement in terms of characteristics and quantities. For a major weapon system, the first step may be the preparation of a Tentative Specific Operational Requirement (TSOR). If subsystems that are later to become parts of a major system are to be developed, an Advanced Development Objective (ADO) may be used.

#### 4.5.4 Planning to Meet the Material Requirements

The performance requirements are confined to statements of what is desired, but do not state how it is to be accomplished. The responsible NMC technical command (NAVAIR for aircraft) must translate the requirements into system configurations and support plans that will satisfy the overall military requirement. Several system approaches having varying costs, risks, and performance potentials may be outlined as part of a concept formulation study. The best configuration design and support plan for satisfying user needs in terms of compatibility with other systems, acceptable risks, and acceptable costs may then be selected as the basis for a Proposed Technical Approach (PTA), which addresses all aspects of operational effectiveness in terms of performance, maintainability, supportability, and reliability.

The PTA is reviewed by the Chief of Naval Material, and if satisfactory, is forwarded to the CNO as the Naval Material Command's response to the TSOR or ADO. Portions or all of the proposed research and development may be authorized at this point. CNO response to satisfactory research and development progress is a Specific Operational Requirement (SOR) in which the factors presented in broad terms in the TSOR or ADO are further defined and clarified, on the basis of more detailed analysis, new inputs from fleet commands, and progress reports of the work proceeding under the earlier authorization. NAVMAT responds to an SOR with a Technical Development Plan (TDP) detailing how the weapon system (or other major item) will be engineered. A TDP for a major system may propose that several contractors be permitted to compete, each conducting Contract Definition studies in which



alternatives will be examined in great detail, and the reasons defined for selecting specific engineering solutions. At this point, much detailed planning will have been accomplished and an analytical study of critical elements of the system will have reached a stage allowing realistic assessment of system technical risk and total costs. The TDP will be reviewed and formally approved by the CNM before being forwarded to the CNO and the Deputy Director of Defense Research and Engineering (DDR&E), where it will be subjected to the intensive analysis applied to all new weapon systems before funds are released for system engineering.

At the TDP stage, supportability planning will have been refined to the point of preparation of an Integrated Logistic Support outline, base loading charts, estimates of maintenance personnel requirements, and equipment failure rates. Life cycle cost estimates will have been prepared, comparing the total life cost of the new system with the cost of supporting the systems it will replace, or with costs for achieving the objective by other means. When the TDP has been approved and funds released, NAVMAT will direct NAVAIR to contract for engineering development of the system. Within 30 days after contracting, the ILS team will have been established in accordance with AR-30, and within an additional 60 days the contractor will be required to submit a detailed outline for accomplishment of Integrated Logistic Support in the form of an ILS Plan.

When GSE end items are to be procured, and are not part of a weapon system procurement, ILS procedures in accordance with NAVAIRINST 4700.6 or AIR-04 Inst 4000.1 may be employed. Low cost common usage end items may be selected exceptions that do not warrant the cost of full scale ILS treatment.

#### 4.5.5 Provisioning

The processes described up to this point provide the background knowledge necessary to the GSE Logistician's understanding of what transpires with respect to procurement of new systems prior to the time he must deal with individual bits and pieces of material. In this section, the supply procedure that will require his fullest participation and best performance will be outlined. This process is called Provisioning.

Provisioning is the process of determining the range (item selection) and depth (item quantities) of spares and repair parts required to operate and maintain an equipment, system, or end item for a given period of time. Determination of quantities for back-up stocks, technical documentation, and allowance lists also result from the provisioning process.

The principal objective of provisioning is to assure that the initial supporting items required to maintain end items introduced into service will be available in the supply system and at the proper maintenance echelons when they are needed. The provisioning process specifies the new items that must be stocked, as well as the additional quantities of established items already carried in the supply system.

Effective supply support of the fleet during the introduction and early operational phases of a weapon system or equipment depends almost entirely on the adequacy and timeliness of the provisioning process and the accuracy of the decisions made at that time.

ASO's primary program support relationship with NAVAIR Project Managers is in the provisioning of new weapon systems and equipment. Items (spares/repair parts) are selected

by a joint technical/supply effort under the guidance and direction of the Commander, NASC. The actual item (spare/repair part) selection is usually accomplished by an Integrated Logistic Support Management Team or a Provisioning Team composed of design and maintenance personnel from the NAVAIRSYSCOMREPS, ASO, and SPCC, repair facility technicians, and operating personnel from the fleet.

#### 4.5.5.1 Provisioning Responsibilities

Provisioning responsibilities for the overall Naval establishment are depicted in generalized form in Table 4-6. Because the GSE Logistician is concerned primarily with NAVAIR, ASO, and SPCC, repair facility technicians, and operating personnel from the fleet.

Table 4-6. PROVISIONING RESPONSIBILITY	
Office	Action
The CNO	Allowance Policy Mobile Logistic Support Policy Material Positioning Policy Overseas Base Load Requirements Ship/Aircraft Mission
Chief of Naval Material	Provisioning Policy Integrated Logistic Support Policy
Cmdrs., Material Systems Commands, Proj. Mgrs.	Program Data Maintenance Plan Technical Documentation Military Essentiality Codes Source Maintenance Recoverability Codes Engineering Estimates of Failure Factors
Cmldr., Naval Supply Systems Command	Provisioning Policy and Practices Requirement Calculation Decision Rules Automated Provisioning
Commanding Officers Inventory Control Point	Scheduling, Coordination, Administration of Meetings Allowance/Load List Preparation Procurements Distribution Shipment

The Naval Air Systems Command and its Project Managers are responsible for the end results of the provisioning process, because they have the inherent responsibility for equipment support and the majority of decisions resulting in individual item selection are based on engineering and maintenance inputs.

The ASO is responsible for business and supply judgments and techniques. These include such matters as the actual procurement of the repair parts selected; preparation of

allowance and load lists; requirement determination rules; furnishing part demand/usage data; automated provisioning procedures; recording of provisioning information, and the scheduling, coordination, and administration of provisioning meetings.

#### 4.5.5.2 Early Planning Stages

Provisioning is closely allied to the other logistic support system elements — maintenance, technical data, support equipment, facilities, contractor support, design and configuration management. It is related as well to the life cycle phases of a weapon system or equipment, ranging from planning to operations. Due to the life cycle aspect, it is necessary that planning for the initial support of equipments and systems begin concurrently with development of performance requirements or as early as possible in the conceptual planning phase. Technical and supply personnel at NAVAIRSYSCOMREP, ASO, and SPCC who will be responsible for the physical provisioning of the end item must enter the program at its earliest stage.

An early input to provisioning advance planning occurs with the release of the Technical Development Plan (TDP) which is the planning document for fulfillment of a Specific Operational Requirement (SOR). The primary feature of the TDP that is applicable to provisioning is the Supportability Plan, which is a plan for the determination of the range and depth of repair parts, the method of acquisition, and the distribution according to the maintenance levels involved. Preparation of the TDP is the responsibility of the NAVAIR Program Manager procuring the weapon system. The Program Manager usually looks to the assigned Assistant Program Managers in AIR-04 for the Supportability Plan. The TDP initial issue normally occurs before weapon system design has reached a level that will provide provisioning detail. However, the TDP is revised when necessary, or at least annually. This provides a reminder to update the Supportability Plan as design and development proceed. A key to GSE needs and distribution is contained in the *Weapon System Planning Document (WSPD)*, NAVAIR notice prepared by CNO/AIR-1011 that lists planned base loadings and schedules.

#### 4.5.5.3 Contract Provisioning Requirements

A provisioning specification is required for every contract that will result in production deliveries and calls for spare and repair parts. This document prescribes the procedures, formats, terms, and conditions governing the provisioning of the items under contract. It specifies the actions to be performed by the contractor and by NAVAIR, ASO, and SPCC and the schedules to be met. In addition, it specifies such items as:

- Completeness and accuracy of provisioning technical documentation
- Government election for interim repair parts support pending full provisioning
- Contractor services to be provided at conferences
- Procedures governing supply support action as the result of approved design changes

All provisioning specifications contain standard clauses regarding such things as federal and military specifications, DoD manuals, provisioning screening procedures, data elements, types of provisioning meetings, vendor data, and scheduling time frames. The scope of provisioning is illustrated in Figure 4-38.



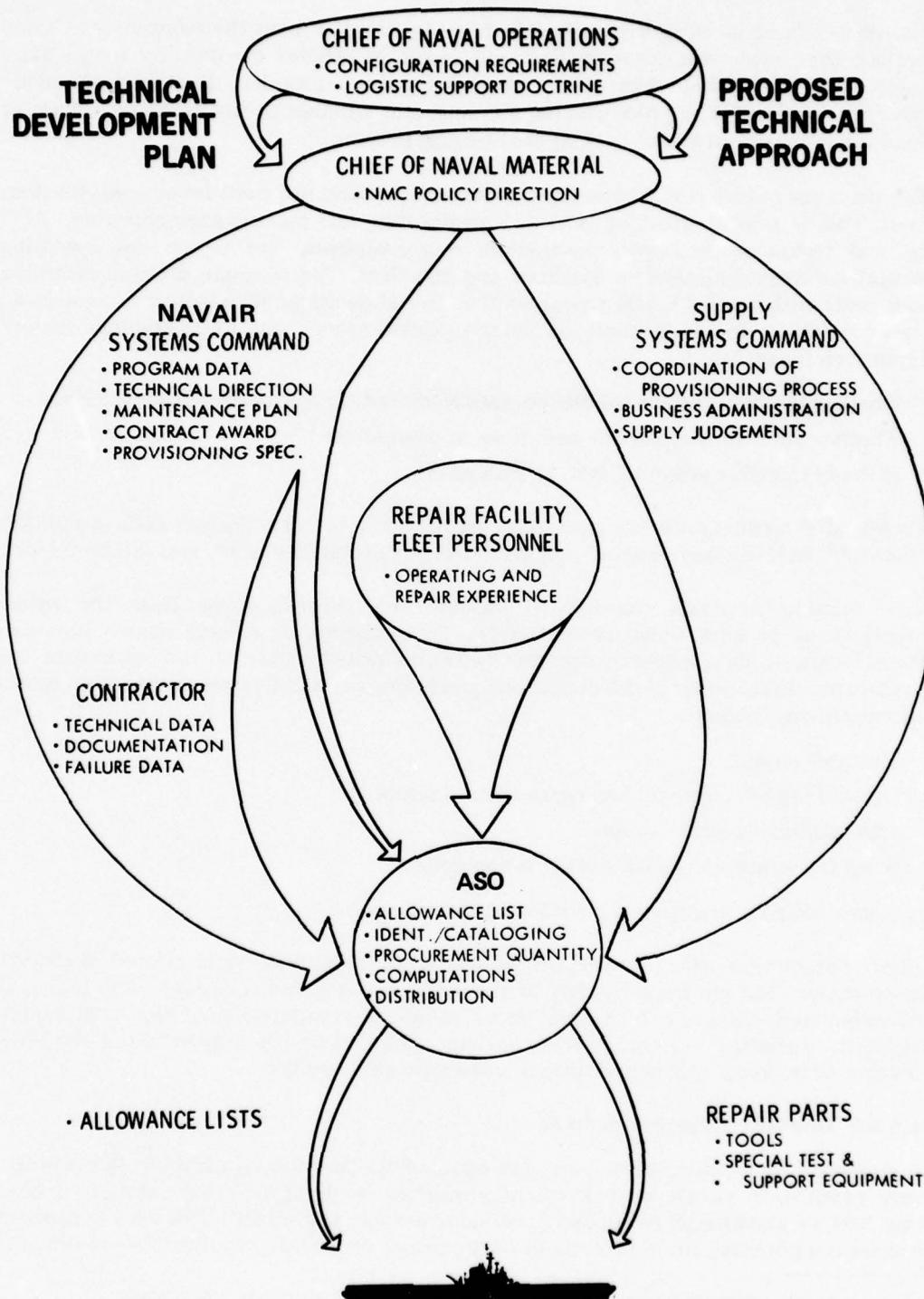


Figure 4-38. PROVISIONING CYCLE

#### 4.5.5.4 The Provisioning Meeting

The provisioning meeting is usually scheduled by the ICP with the contractor at some appropriate time after the contract that will result in articles for delivery to the fleet (production articles rather than R&D articles) has been awarded. Decisions are made regarding the location of the provisioning meeting, and whether or not to place orders for long lead time items prior to the normal provisioning process.

The usual procedure is to review the contractor's provisioning parts breakdown for item selection. This is a joint effort by NAVAIR engineering and maintenance personnel, ASO supply and technical personnel, contractors representatives, and repair and operating representatives from maintenance facilities and the fleet. The ultimate decision regarding any item rests with the NAVAIR representative. Initial decisions to select or not select an item are based on the assignment of Source, Maintenance, and Recoverability codes\* signifying such things as:

- Whether the item is to be purchased, manufactured, or assembled within the Navy
- Whether the item is repairable and, if so, at what levels
- If the next higher assembly is to be purchased

Technical determinations are also made with regard to other factors such as military essentiality,\*\* shelf life, maintenance removal rates, recoverability rates, and failure factors.

The decision is made whether to procure the selected items from the prime manufacturer or procure them competitively. This depends to a large degree upon an adequate technical data package together with unlimited rights to use such data for competitive purchase. Some of the conditions precluding competitive procurement on initial provisioning are as follows:

- Unstable design
- Lack of reliable overhaul and replacement factors
- Limited time to place orders
- Need for prime contractor configuration control

In such cases, primary emphasis is placed on direct purchase.

Upon completion of the selection of the item range and other related decisions, follow-on actions are the responsibility of the ASO. These include complete item technical identification and obtaining of federal stock numbers, computation of the total supply requirement, including supply system backup, preparation of procurement requests, distribution of material, and preparation of allowance and load lists.

#### 4.5.5.5 Delaying Initial Provisioning

Increasing complexities in weapons and equipments, and the attendant unstable design in early production stages, have frequently resulted in deferring Navy support until a sounder base of knowledge, developed in actual operation, is available. This usually happens when there is a potential for improvement of the design or refinement of the failure or usage

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\*Procedures for use of SM&R Codes are contained in NAVAIR INST 4423.2 of 7 July 1969.

\*\*Military essentiality criteria are given in NAVAIR INST 4423.10.

data pertaining to new equipment appears possible, or when research and development and production schedules have been compressed so far that sufficient technical information upon which to base provisioning decisions is not available. Under these conditions, provisioning is delayed until a solid foundation of usage and failure data has been obtained. It may be more practical and economical to the Navy for the contractor to support the equipment for an initial period of service, allowing the Navy to delay making purchase decisions until more experience is acquired. In these circumstances, contractor support (interim support), phased provisioning, and deferred procurement are resorted to.

#### **4.5.5.6 Types of Contractor Support**

Three types of contractor support can be considered:

- **Full Support** — The contractor assumes total responsibility (maintenance, repair of repairables, support equipment, support material, training) for a specified period of time for specified cost at a specified degree of readiness.
- **Material Support** — The contractor provides and manages spares and repair parts for a specified period of time for specified cost at a specified degree of supply effectiveness.
- **Limited Support** — The contractor provides sets of repair parts, either parts peculiar or parts common, or both, for maintenance of the equipment for a specified period of time.

In some instances involving contractor support, contractor personnel are assigned to an operating unit. In those instances wherein a contractor is responsible for the spares and repair parts, he is allocated storeroom space at a shore activity and assumes total responsibility for the custody, stocking, inventory control, and issue of the items. In essence, he serves as a separate supply department, and furnishes his own personnel.

#### **4.5.5.7 Phased Provisioning and Deferred Procurement**

These terms refer to processes whereby the procurement of certain selected items is deferred until the later stages of production, thereby improving the ability to more reliably predict requirements, or to defer procurement of high-cost items for budgetary control reasons.

#### **4.5.5.8 Other Types of Provisioning**

In addition to initial provisioning, there are two other types of provisioning actions — follow-on provisioning and reprovisioning. Follow-on provisioning is a subsequent provisioning of the same equipment from the same contractor, usually by means of increasing the quantities to be delivered on the same contract. Reprovisioning is a subsequent provisioning of the same equipment from a different contractor. Reprovisioning may also be a subsequent review of initial provisioning for purposes of modifying decisions made during the initial provisioning process.

#### **4.5.6 Allowance Lists**

For the operating forces, the provisioning cycle results in the preparation of the unit allowance list. Each ship or aircraft squadron is furnished an allowance list of repair parts for each equipment or aircraft to be supported, and various categories of operating supplies.



Equipment/component allowance lists are currently built on the basis of criteria contained in OPNAVINST 4441.12. Since this has proven somewhat less than desirable in practice, new methods are being sought — applying level-of-repair techniques, etc.

The allowance lists, called Consolidated Shipboard Allowance Lists (COSAL) and Aviation Consolidated Allowance Lists (AVCAL) are developed by considering how many times and in how many equipments an item is used, applying essentiality and replacement factors. The COSAL and AVCAL must insure that the support given an operating unit will be adequate for specified endurance periods while conforming to space and budget limitations.

#### 4.5.6.1 AVCAL Preparation

The building blocks for constructing the AVCAL are the Initial Outfitting Lists. The IOL is a list of the quantities of major components, subassemblies, and parts estimated to be required for maintenance support of designated weapons systems and subsystems for a 90-day period. The quantities of parts and subassemblies listed in the various IOLs are initially based upon the CNO logistic doctrine, and the recommendations of the provisioning teams, but are continuously adjusted by ASO, employing usage data and the recommendations of the Operating Forces.

AVCALs are prepared by the Aviation Material Offices (AMO). There are two of these offices, one on each coast, operating under the direction of the Fleet Type Commanders, Atlantic and Pacific. Procedures for the two are similar but not identical. To illustrate the process, the Atlantic procedure is described below.

The AVCAL preparation process begins with a letter from the Commander, Naval Air Force, Atlantic Fleet (NAVAIRLANT) directing the AMO Norfolk to prepare an AVCAL for a given aircraft carrier to meet a stipulated deadline. NAVAIRLANT informs the AMO as to the numbers of each type of aircraft to be deployed aboard the carrier for a specific operation or for an operating period. NAVAIRLANT also specifies the total flying hours programmed for each aircraft type during the deployment period.

The AMO selects the relevant portions of the appropriate Initial Outfitting List (IOL) from the updated list of IOLs forwarded monthly on magnetic tape format from the ASO. (For "mechanized" ships ASO prepares the AVCAL). Portions of about 115 different IOLs may appear in an AVCAL for a CVA. Quantities of common items are factored and the preliminary or "work deck" AVCAL is recorded on electric accounting machine cards, with a separate card for each of 30,000 or more items.

The "work deck" is forwarded to the carrier for joint review by the ship's supply department and the Carrier Air Wing, who scrutinize the listings item by item, adjust quantities up or down, and add or delete items as dictated by their experience and judgment. Based on the final "work deck" the ASO prepares the final AVCAL. AMO prepares and forwards requisitions for shortages and monitors them until all documents have been processed, at which time a complete status listing is sent to the ship, which then assumes responsibility for all remaining follow-up and monitoring actions.

A new AVCAL is generally produced for each deployment, even in those cases where there has been no change in aircraft load, because aircraft configuration changes and usage experience frequently make the old AVCAL invalid.

#### 4.5.7 Interim Support

When need for delayed initial provisioning is foreseen for an advanced weapon system, formal plans for interim support are made a part of the weapon system production contract. The period of interim support begins with delivery of the first new article and formally ends on the "Navy Support Date", or longer. The contractor becomes the Inventory Manager and has full responsibility for supply during this period. Contractor interim support formal requirements are covered in AR-30, WR-2, and MIL-P-21873.

Well in advance of first-article delivery, the contractor provides a Support Material List (SML) containing a proposed initial selection of spares and repair parts. This list is reviewed by members of the Integrated Logistic Support Management Team, and is modified to reflect their judgment concerning specific items and situations. However, for a new weapon system, it may be necessary to accept most of the contractor's recommendations until experience with fleet usage can be developed. The interim support section of the weapon system contract usually contains a line item for "repair of repairables" to allow time for the Navy to prepare for intermediate and depot level repair of the newly acquired system repairable components.

During the interim support period, NAVAIR collects usage data, monitors changes in design that will affect support, and prepares for transition to full Navy support of the system. This does not happen instantly on the Navy Support Date, but is accomplished in phases before and after that date, which was established at the time of contracting on the basis of best estimates. The date may have to be changed for various reasons, but most often because more lead time is required to contract for and obtain delivery of repair parts and spares for Navy stocks. Another delaying factor that is frequently encountered is late receipt of documentation needed to fully identify all support requirements. After the documentation has been received, the drawings must be reviewed to determine the coding for procurement method and repair levels — a time-consuming task. For these reasons, the Navy Support Date must be regarded as a goal to be met if at all possible, rather than a hard and fast cut-off date. As a practical definition, the Navy support date is the date on which the ICP is prepared to respond to requisitions.

During the transition to Navy Support, the material under inventory control of the contractor must be accounted for and put into the Navy inventory. At this time some items will require updating to incorporate design changes, while other items may be scrapped as obsolete or uneconomical to update. Here again, the experience and judgment of the NAVAIR Logistician is an important factor.

The major airframe contractors have large staffs of highly competent and experienced people in their support groups who are thoroughly familiar with the Navy's specifications and methods. Consequently, the arrangements for interim support can be expected to cover all foreseeable contingencies when a major aircraft procurement is involved.

An example is furnished by the Navy's contract with Lockheed for interim support of model P-3C aircraft. The weapon system contract was executed in November 1967, with first aircraft delivery scheduled for July 1969, and the Navy Support Date designated as January 1970. The contractor's Support Material List was prepared in four sections as follows:

- Contractor-furnished spares/repair parts
- Government-furnished spares/repair parts

- Contractor-furnished support equipment
- Government-furnished support equipment

The calculations were based on one year's support for ten aircraft to be operated from the Naval Air Station, Patuxent River, Maryland. Two-thirds of the material was to be stored at Patuxent River, and the remaining one-third was to be held at the contractor's plant at Burbank, California for shipment as required. During the interim support period, monthly conferences were to be held with ASO to review procurement status, lead times, documentation, and other one-time details that must be resolved as ASO gains momentum in its preparations to assume responsibility for inventory management.

The situation is likely to be radically different when an end article of GSE is procured from a source unfamiliar with military requirements for support documentation. For example, an item such as a tow tractor may be assembled by the contractor with parts obtained from many automotive part vendors. The contractor may not be in possession of the detailed drawings and other documentation necessary for Navy support processing. Delays may result while the documentation is being obtained. In the meantime, interim support must be provided for the end article, which may have been distributed to 50 or more locations. Local supply officers may have to purchase parts through local commercial suppliers (if they are ashore) if requisitions cannot be expeditiously filled through the Navy supply system. Units afloat may be in serious difficulty. Situations of this nature are likely to result in urgent demands on the NAVAIR logistician.

The procedures followed by the contractor during the interim support period are quite flexible and depend heavily upon the experience and judgment of the NAVAIR logisticians. The contract provisions and procedures are best characterized as "an informal but expeditious way of buying interim support."

Sometimes a special type of in-house interim support will continue after the Navy Support Date. Unusually complex items, such as the NR-10 Air Conditioner that continues to undergo rapid configuration change as the result of design improvement or fault correction, may require special inventory control measures. In such cases, the Navy will buy spares and repair parts from the contractor and will usually assign inventory control to the field activity closest to the user, such as NAVAIRSYSCOMREPAC, or to a Marine Corps Air Station for equipment used in Marine Corps aircraft. The HCT-10 Hydraulic Test Stand is an example of an item for which this type of extended interim support has been furnished.

#### 4.5.8 Modernization of Aircraft

Section 4.5.4 describes the formal process by which CNO objectives for new weapon systems are translated into configuration plans that will reach the hardware stage after intensive research and development. A different process, discussed in Section 4.4.1, applies to the modernization and improvement of existing air weapon systems. It is called the Operational Safety and Improvement Program (OSIP). Statements of needs are developed in a dialogue between OPNAV and the fleet commands, with NAVAIR closely involved. The dialogue may, in fact, be initiated by NAVAIR as a means of incorporating new items in existing aircraft to improve its capabilities. An example of a very large OSIP program is the All Weather Carrier Landing System (AWCLS) which is being installed in all first-line aircraft, under the direction of a NAVMAT-designated Program Manager.



#### 4.5.9 Inventory Management

Management of inventory is a function of designated Inventory Managers. NAVAIR is responsible for managing items with the following characteristics:

- Items under research and development
- Items of unstable design
- End items of major importance
- Repairable items for which engineering decisions or configuration control is essential and not available elsewhere

All other aeronautical items are managed by Inventory Control Points (ICPs) e.g., the Aviation Supply Office, or the SPCC. ASO/SPCC operates under management direction of the Commander, Naval Supply Systems Command and normally manages established (stable) items of equipments, components, and repair parts.

Aeronautical material under direct inventory management of NAVAIR is assigned "2V" and "2M" cognizance codes. Aeronautical material over which inventory management is exercised by ASO/SPCC are assigned "1R" and "2R", "2H" and "4A" cognizance codes. These codes appear as a prefix of the Federal Stock number (FSN) to indicate to the user where to place his order.

NAVMATINST 4400.11 delineates NAVSUP/NAVAIR responsibilities in regard to the ASO. NAVSUP provides direction to ASO on management methods, organization and procedures, personnel ceiling, workload funding, and facilities. NAVAIR provides direction to ASO on technical procurement and overall program direction in the centralized management of aviation spares, repair parts, and aeronautical support equipment. To formalize this split command relationship, the Commanding Officer, ASO, reports to the Commander NAVAIR for technical direction.

The respective NAVAIR and ASO responsibilities in the management of aeronautical material are called "program control" and "material control". NAVAIR is responsible for making and implementing logistic support management decisions resulting in planned levels of readiness, and for adjusting such decisions to accommodate changes in funding or program priorities. Program Control is assigned to NAVAIR, because that activity is responsible for the operational effectiveness of the program. Material control involves the formulation of specific supply policies and procedures and the development and control of data systems in the implementation of the NAVAIR program directives. In essence, program control actions are the bases for the material control actions which constitute execution of the NAVAIR-approved program. Program control of both "R" and "V" cognizance material is vested in NAVAIR, but ASO is given material control responsibility for all items coded "1R" and "2R".

Items are assigned to the NMC Inventory Managers by the Chief of Naval Material based on the principle that only one Inventory Manager will manage each supply item. Consequently, some common components and repair parts used for aeronautical support are managed by other than ASO. For instance, the Electronics Supply Office (ESO) manages common electronic items for ships, aeronautical, ordnance, and shore facility support. ASO passes requirements to ESO for such items in accordance with an ASO/ESO Supply Support Agreement.

Navy Inventory Managers are required to maintain a proper balance between supply and demand, keeping within the budget and providing responsive and efficient support to the fleet. They perform the following functions:

- Collect the data necessary to determine procurement, repair, and distribution requirements
- Determine and justify budget requirements for inventory
- Make decisions relating to item acquisition, repair, and retention
- Determine stock level and replenishment requirements

The principle of having a single Inventory Manager for each supply item has been extended to apply to DoD-wide coverage for certain items common to all the military Services, requiring dependence on activities outside the Navy for these items. For instance, although the diesel engines for self-powered mobile GSE are managed by the Ships Parts Control Center (SPCC), the tires are managed by the Army Tank Automotive Center (ATAC) and the fan belts are managed by the Defense Construction Supply Center (DCSC).

As a consequence, detailed planning and initiative are required of the GSE Logistician in his follow-up activities, to assure that all required items reach the user in advance of need.

#### **4.5.9.1 Fleet-Controlled Material**

Expendable ordnance and aeronautical items constitute the bulk of the Fleet-Controlled Material. When a Fleet Commander-in-Chief determines that the demand for an essential item, component, or repair part of aeronautical equipment, ship support equipment, or expendable ordnance exceeds or will soon exceed supply, he designates the item as Fleet-Controlled Material in accordance with ASO Field Instruction 4000.7. The appropriate Type Commander, for instance COMNAVAIRPAC for aeronautical material in the Pacific, then assumes control of the distribution in his geographical area and rations the item to meet the most urgent Fleet requirements. The supply activities stocking that item in his geographical area will not issue the item until it is released by the controlling authority.

Each Type Commander publishes monthly a list of all items designated as Fleet-Controlled Material. When supply of an item is no longer critical, it is removed from the list, and normal requisitioning, issue, and asset-reporting procedures are resumed.

Proportionate shares of Fleet-Controlled Material items received from procurements, or on hand in the distribution network, are consigned to the control of the appropriate Type Commanders by NAVAIR and ASO, based on planning data provided by CNO or on special circumstances, such as an increase in failure rate indicating a potential shortage of an item essential to sustain a scheduled operation.

#### **4.5.10 Repairable Item Management\***

As equipments and systems in the Navy grow more complex and more difficult to maintain at operating level, increasing use is being made of replacement equipments, components, or modules. These recoverable items, or repairables, as they are called, are components of a system or equipment, such as an electronic control box, which is replaced periodically or upon failure and can be economically restored to a serviceable condition. When the technician removes the failed item he draws one to replace it from stock and turns

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\*For GSE end items, refer to Section 4.8.

the failed item in for repair. After repair or rework, the item becomes a supply asset. The decision that an item will be managed as a repairable is made during the provisioning process.

Most repairables are essential to the mission of the system of which they are a part. To achieve quick turn-around time, a high degree of control is required to manage this material, not only on the part of the Inventory Manager but also by the Type Commanders, fleet units, and commercial and Navy repair facilities. Repairables are usually expensive and constitute a high inventory investment. As an indication of the size of this category, the ASO has inventory control responsibility for about 33,000 repairables valued at about 1.3 billion dollars, with annual issues of about 0.75 billion dollars.

When an item fails, and depending on its location, the nature of the failure, and on-board capability of the item, it is repaired (1) by the user (ship or squadron), (2) at intermediate level (Air Station AMD or Marine H&MS), or (3) at a designated depot overhaul point (commercial contractor, avionics facility, or Naval Air Rework Facility).

#### **4.5.10.1 Turn-Around Cycle for Repairables**

One of the significant considerations in determining the quantity of a given repairable to be carried in the inventory is the period from the time the failed unit is removed from service to the time it is returned to a serviceable condition and made available to a potential user. This is called the turn-around time. Much effort is directed toward management actions that will reduce the turn-around. Elements of the turn-around cycle and the organizational levels responsible for each element are as follows:

- Removal, replacement, and repair at the shipboard or squadron level; return to and repair at the intermediate level; return to the depot level. The Type Commander and his subordinate Commands are responsible for insuring that the times required for these actions are held to a practical minimum.
- Repair of the item, subject to the Inventory Manager's requirements. COMNAVAIR, through his repair activities, is responsible for Naval Air "in-house" repair of aviation material. The Inventory Manager is responsible for contractor performance for commercially repaired items.
- Return of the item to stock, ready for issue. Based on status information concerning the repaired item, the Inventory Manager determines where it will be positioned in the Navy inventory. Subject to this direction, the repair activity is responsible for returning the item to inventory.

The Inventory Manager maintains a watch over individual item turn-around cycles and evaluates the actual turn-around time against current and projected failure rates and on-hand inventories. If there is a lag in an element of the turn-around cycle, the Inventory Manager contacts the responsible Commander and others concerned, in an attempt to correct the problem.

#### **4.5.10.2 Processing Repairable Items**

About 80 percent of all aircraft repairables rework is accomplished at the user (organizational) and intermediate levels. This work is reflected in the demand data used by the Inventory Managers to compute stock levels and replenishment requirements. Generally speaking, the more work done at the organizational and intermediate level for a given rate of failure, the lower the system inventory requirements because of the shorter turn-around time involved.



Policy, responsibilities, and procedures for processing aeronautical components, equipment, and training devices in need of depot-level rework are contained in BUWEPSINST 4408.3B. The NAVAIRSYSCOMREPS are the key activities in the management of the rework program, and are responsible for review and control of depot-level activities in their respective areas. Range-scale computers installed at all Naval and Marine Corps Air Stations and at depot-level rework facilities are used to control the flow of material to and from depot-level rework. A bi-weekly cycle of scheduling and reporting is used. Data from EAM punched cards is transmitted over the AUTODIN network.

#### **4.5.10.3 Repairable Item Inventory Control**

The inventory control tasks for repairables are basically the same as those for any other supply item. However, certain additional tasks incident to the management of repairables should be noted. The Inventory Manager performs the following tasks:

- Establishes specific arrangements for repair services with a Navy or commercial repair source
- Determines current item repair requirements, based on current and projected on-hand quantities of serviceable items, and current and projected failure rates and turn-around times.
- Advises the repair activity concerned of current item repair requirements and the urgency attached
- Maintains a watch over individual item turn-around cycles and evaluates the actual turn-around time against current and projected failure rates and on-hand inventories.
- Maintains information concerning the location and status of items returned for depot level repair.
- Positions serviceable items at inventory distribution locations
- Forecasts requirements for depot-level commercial repair contracts
- Develops the budget estimates for the costs of depot-level repair.

#### **4.5.11 The AMMRL Program**

##### **4.5.11.1 Definitions**

**AMMRL (Aircraft Maintenance Material Readiness List) Program** — The title of the overall program which provides the means for effective management of aircraft GSE employed at organizational and intermediate level maintenance activities.

**ADMRL (Application Data for Material Readiness List)** — The data specifying the requirement for each end item of aircraft ground support equipment against intermediate and/or organizational level of maintenance and selected ranges of each aircraft/engine/system for which each item is needed. This data is stored in computers and used to develop Individual Material Readiness Lists.

**IMRL (Individual Material Readiness List)** — A consolidated allowance list specifying items and quantities of aircraft ground support equipment required for material readiness of the "I" or "O" level maintenance activity to which the list applies. These lists are constructed by extracting those applicable portions of the ADMRL which pertain to the maintenance and material logistics responsibilities of a specific activity to which the list

applies. Each IMRL contains a set of instructions explaining the use and arrangement of the IMRL. The IMRLS are constructed by the NAVAIRSYSCOMREPs upon request of the Type Commander of the activity to be outfitted.

#### 4.5.11.2 Objectives

The objective of the AMMRL program is to document factual data and in-use asset information concerning GSE which can be used by management in the following ways:

- To determine and establish allowance requirements for GSE at intermediate or organizational maintenance activities
- To assist in redistributing in-use assets
- To provide a base for budgeting for GSE requirements
- To measure GSE material readiness

#### 4.5.11.3 Scope

The scope of the AMMRL Program encompasses:

- Activities, including all Navy and Marine Corps aircraft maintenance activities which perform intermediate and/or organizational level of maintenance
- Equipment, including all end items of aircraft GSE required for intermediate and organizational level maintenance, less common powered and nonpowered hand tools
- Housekeeping items, such as office furniture, equipment, and items common to all activities defined in applicable tables of allowance and which are required as indirect support
- Common production tools and tooling such as lathes, drills, presses, plating equipment, grinders, induction heaters, etc.\*
- Items which are used only by the contractor
- Personal equipment (head sets, microphones, etc.)
- Selected Section "M" equipment

#### 4.5.11.4 Overall Program Management

The principal focal point is the designated AMMRL Program Manager in NAVAIR (AIR-417). The AMMRL Program Manager is responsible for overall AMMRL Program management and coordination of all NAVAIR and field activity AMMRL Program functions.

#### 4.5.11.5 Specific Areas of Responsibilities

The AMMRL Program Manager (AIR-417) shall:

- Convene ADMRL technical review conferences
- Develop and implement procedures for processing all ADMRL changes submitted by Type Commanders and Fleet activities.
- Monitor ADMRL correspondence and data flow to assure that data is being processed in a timely manner.

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\*Those common production tools listed above are used in direct support of aeronautical equipment (i.e., those listed in the ADMRL) are considered to be GSE.

- Plan and provide for the resources required to accomplish AMMRL program management and operational objectives.
- Convene and act as "Board Chairman" of the AMMRL Review Board Conferences.
- Assure that provisions are made for adequate training at all levels for personnel concerned with the AMMRL Program.
- Act as final authority for all management actions impacting the AMMRL Program.

The GSE Program Manager (AIR-534) shall:

- Budget, plan, and provide the resources to procure the required GSE.
- For systems and GSE not assigned to the NAVAIRENGCEN for management, AIR-534 coordinates assignment of GSE allowances and other data elements with AIR-417 and forwards information to ASO via NAEC (SE-22).

NAVAIRENGCEN (Naval Air Engineering Center) SE-22 shall:

- Review for approval all ADMRL technical changes.
- Approve recommended changes to the ADMRL. NAVAIRENGCEN will, prior to approval, coordinate with NAVAIR if additional overall funding is required.
- Verify, approve, and review data used to construct the ADMRL.
- Review SERS (Support Equipment Requirement Sheets), SELS (Support Equipment Lists) and approve or revise allowance quantities, source, maintenance and recoverability codes, preposition codes, calibration requirements, system application, etc.
- Assure that data relative to NAVAIRENGCEN/NAVAIR acquired items of GSE is included in the ADMRL and entered in appropriate SELS.
- Be responsive to AMMRL Program objectives and direction as set forth by the AMMRL Program Manager.
- Provide technical representatives at ADMRL Technical Review and AMMRL Review Board conferences.

The ASO (Aviation Supply Office) shall:

- Maintain the master ADMRL.
- Initiate procurement and supply support agreements on those SEL items approved by NAVAIRENGCEN (SE-22).
- Enter all NAVAIRENGCEN (SE-22) approved technical changes in the ADMRL.
- Enter all nontechnical changes in the ADMRL.
- Provide the master ADMRL to NAVAIRSYSCOMREPAC and NAVAIRENGCEN.
- Inform the AMMRL Program Manager of all ADMRL changes made as a result of Fleet requests.
- Maintain the Consolidated GSE In-Use Asset Inventory File
- Provide representation at the ADMRL Technical Review and the AMMRL Review Board conferences.



NAVAIRSYSCOMREPs shall:

- Represent NAVAIR within geographical areas of responsibility
- Manage the AMMRL program within assigned geographical areas, as stated above, and make recommendations to the AMMRL Program Manager regarding changes to overall management and operational policies and procedures
- Schedule, prepare, and maintain IMRLs for all applicable Navy and Marine Corps "I" and "O" level aircraft maintenance activities based upon the criteria and guidance provided by NAVAIR and the Type Commanders
- Obtain in-use asset inventories and maintain inventory data
- Furnish required in-use asset inventory reports to ASO
- Maintain an up to date ADMRL file and computer programs to fulfill responsibilities to NAVAIR and Type Commanders. In this respect, NAVAIRSYSCOMREPAC is responsible for furnishing data to NAVAIRSYSCOMREPLANT.

Type Commanders shall:

- Exercise command discipline, including review of quality and accuracy of the IMRL, and provide management coordination at the Type Commander level for proper execution of the AMMRL Program. Other responsibilities are detailed in NAVAIRINST 4420.1 series.

#### 4.5.11.6 ADMRL Data Flow

The basic ADMRL (from which the IMRLs are constructed) is determined on the basis of maintenance plans, supply support plans, tasks to be accomplished, previous experience with similar equipment and weapon systems, available facilities, personnel, and other factors. These determinations are continuously reviewed and modified in response to recommendations received from operating activities, Type Commanders, and ADMRL Technical Review Conferences. See Figure 4-39 for an exhibit of data flow from contractors SEL submittals to incorporation in IMRLs.

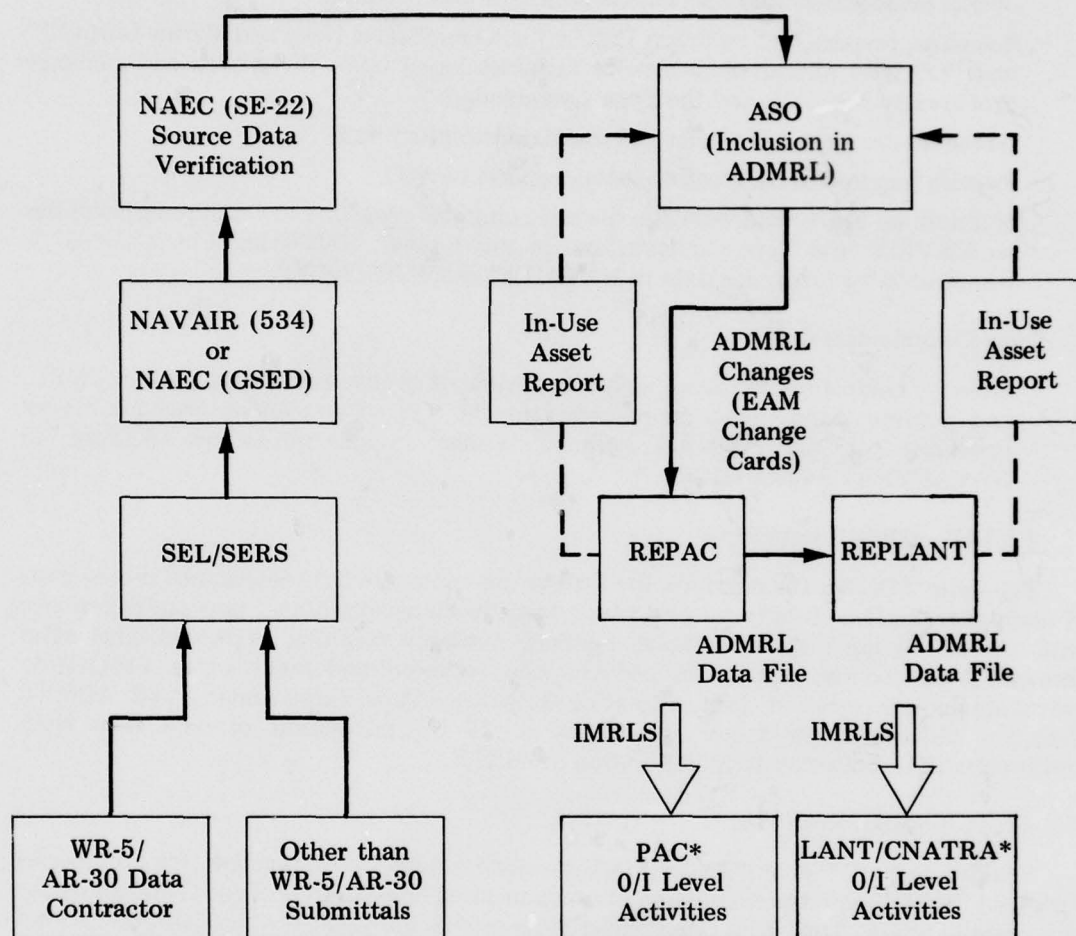
#### 4.5.11.7 IMRL Revisions

Briefly, each "I" and "O" level maintenance activity is responsible for continuous review of its IMRL and the submission of recommended changes to its Type Commander for appropriate action. The Type Commander reviews recommended revisions and determines the authorized tailoring or deviations to be included in the IMRL. The Type Commander advises the NAVAIRSYSCOMREP of authorized revisions. The NAVAIRSYSCOMREP reissues or revises the activity IMRL accordingly.

The Type Commander determinations are based upon many factors, such as the information included in the applicable segments of the ADMRL, the on-hand GSE inventory of the activity recommending the revisions, overall Type Commander equipment assets, the maintenance and supply support plans, recommendations from similar activities and the justification provided for the recommended revisions. More detailed procedures are outlined in NAVAIRINST 4420.1 series.

#### 4.5.11.8 ADMRL Source Data Changes

If the recommended IMRL revisions are considered appropriate and applicable to other similar activities, the Type Commander will forward recommended ADMRL revisions in



\*PAC, LANT, CNATRA maintenance activities (and NAVAIRREWORKFACS) submit in-use GSE transaction reports to respective representatives. Representatives maintain file and submit consolidated in-use asset report to ASO.

Figure 4-39. ADMRL SOURCE DATA/IN-USE INVENTORY DATA FLOW

accordance with the procedures stated in NAVAIRINST 4420.1 series. (IMRL revisions can be authorized by the Type Commander if requirements can be filled from Type Commander assets — see Section 4.5.11.7.)

#### **4.5.11.9 In-Use Asset Reporting**

Each NAVAIRSYSCOMREP has established a Consolidated Inventory File of accountable in-use aircraft ground support equipment for maintenance activities within each assigned area. The information in this file is based upon the information contained in GSE transaction report cards and the periodic physical inventory reports submitted by each activity.

Each maintenance activity is responsible for advising the NAVAIRSYSCOMREP of changes in the inventory as such changes occur. This is accomplished through the submission of GSE transaction report cards. These reports enable the NAVAIRSYSCOMREPs to update their inventory files. In effect, these cards provide the NAVAIRSYSCOMREPs with the information required to maintain a perpetual inventory of accountable in-use GSE.

Each NAVAIRSYSCOMREP forwards consolidated inventory reports to ASO, NAVAIR (AIR-417) and the Type Commanders on a quarterly basis. These reports are prepared from the data contained in each NAVAIRSYSCOMREP Inventory File, updated in accordance with GSE transaction report cards.

Accurate and systematic inventory reporting of accountable in-use GSE is essential. Such reports provide GSE managers with the information required to determine the material readiness condition of each maintenance activity. Through consolidation of these reports, determinations can be made concerning the material readiness condition of specific areas, specific commands, and the overall Navy-wide position. These reports are also required for management decisions at all levels in the redistribution of equipment, development of budget requests, and equipment procurement. It is imperative that all reporting activities forward timely, complete, and accurate reports. The importance of accurate and timely reporting cannot be stressed too strongly.

#### **4.5.11.10 Summary**

The ADMRL must be constantly reviewed and revised because of the many changes which weapon systems must undergo when approved TDs are implemented. It is estimated that each first line model aircraft is affected by approximately 100 authorized changes or bulletins per year, some of them major in scope. The impact of each change on GSE end items requirements must be determined, and reflected in the ADMRL.

The AMMRL program provides the GSE Logistician with a basic reference document (ADMRL) when questions arise which involve current application or authorized quantities of organizational/intermediate level maintenance GSE. Conversely, nearly every action taken by the GSE Logistician must be considered for its effects on the AMMRL Program.

Detailed policies, procedures, and responsibilities are promulgated in more detail by NAVAIR Instruction 4420.1 series.

#### **4.5.12 Transportation**

An important element of supply is the movement of material from its place of origin to the user. Military transportation is a specialty in itself; only those elements that concern the GSE Logistician are treated here.



The Single-Manager concept discussed in Chapter Two has been applied to military transportation, with each of the three Services responsible for reducing those services most pertinent to its basic region of operation, the Navy manages the Military Sea Transport Service (MSTS), the Air Force the Military Airlift Command (MAC), and the Army the Military Traffic Management and Terminal Service (MTMTS). Transportation of Navy material is sometimes the joint effort of all three Services.

The division of responsibility within the military transportation system is illustrated in Figure 4-40. The Navy determines the "what, where, and when" of movement but has only limited control of the "how". Navy control over air shipments extends to the aerial port of embarkation (APOE) because of the existence of the controlled airlift service QUICKTRANS.

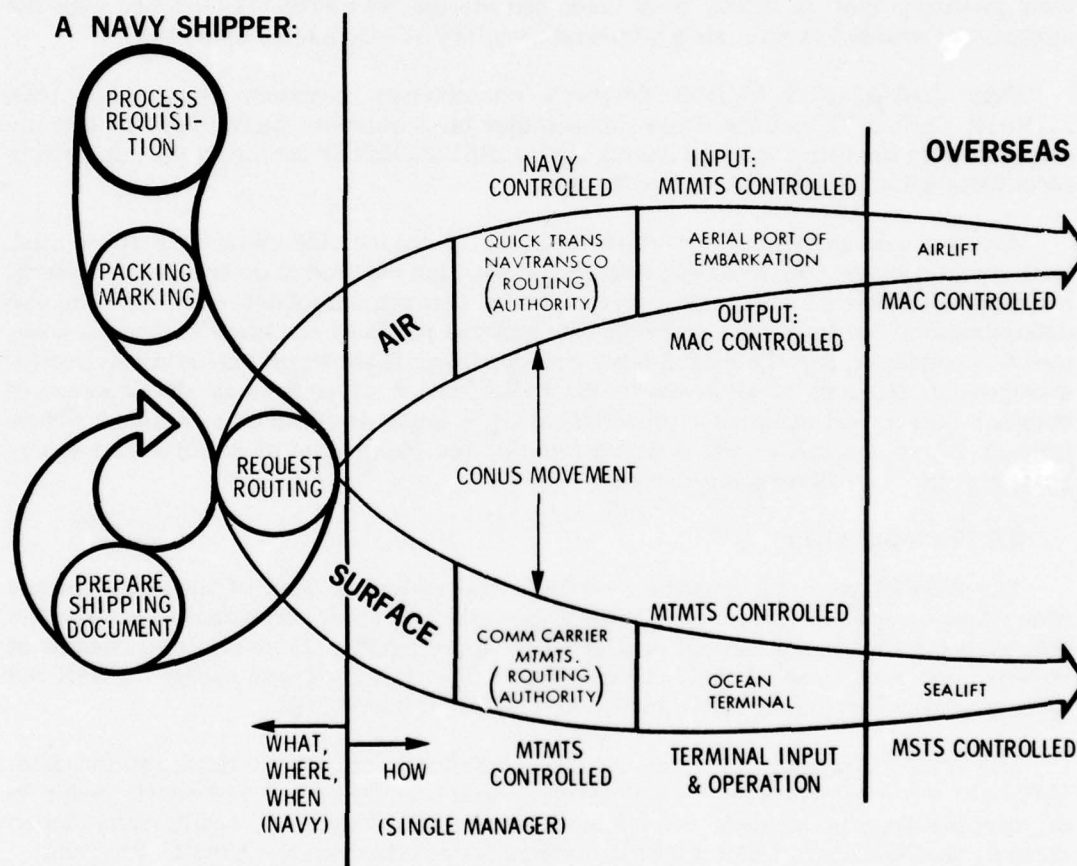


Figure 4-40. DIVISION OF RESPONSIBILITY FOR MATERIAL MOVEMENT

QUICKTRANS is a specialized, premium service to the Navy and Marine Corps which provides morning-after transcontinental service and same-day delivery along each coast. QUICKTRANS flights connect with MAC flights to provide continuous overseas air movement from many Navy points of origin not served directly by MAC or commercial service.

To illustrate, QUICKTRANS serves all major Navy aircraft engine overhaul and repair facilities by effecting rapid movement of high cost repairable items and components for first-line aircraft. QUICKTRANS also provides direct support to the nuclear submarine and Fleet ballistic missile programs, and links the Naval Supply Centers, Depots, Shipyards, and other elements of the Navy's industrial complex.

The Navy Transportation Coordinating Offices (NAVTRANSCOs) located in Norfolk and Alameda, and their branch offices at Eastern and Western Area Headquarters of MSTs, are the principal contacts between the Navy and the operating elements of the three Single Managers for transportation. The NAVTRANSCO is the routing authority and moves high-priority shipments by air within CONUS. For surface shipments, Navy control ends with the routing request. MTMTS arranges for CONUS movement via commercial carriers and "books" freight with MSTs. The NAVTRANSCO is authorized to enter air-eligible material into the airlift system since he reports to the area headquarters of MTMTS regarding matters of input control. Final delivery to the user, the ship, or station which originally requisitioned the material is the Navy's responsibility after receipt of the material by the MTMTS terminal.

The Navy shipper is responsible for preparing the material for shipment and for requesting a routing. After the routing is received from the appropriate agent, NAVAIRTRANSCO for air transportation, or the MTMTS regional office for surface transportation, the material is no longer subject to Navy control. Cargo entered in the Single Manager systems loses its service identity, but never its level of urgency.

The requisitioner's priorities and assigned delivery dates are translated into transportation priorities, which are keys to the method of shipment and handling and processing of cargo at the terminals. The higher priorities constitute authority for clearance into the airlift system unless constraining factors indicate that airlift is not the most expeditious mode of transportation.

The military transportation system is designed to operate without assistance or intervention from the Headquarters levels. However, questions regarding policies, procedures, and efficient use of the system occur from time to time. For this reason, transportation specialists on the NAVAIR Headquarters staff are available to assist the GSE Logistician.

#### **4.6 PERSONNEL AND TRAINING**

This section briefly describes manpower allocations and training required for optimum support through, and of, GSE. Other sections in this chapter describe allocation of equipment, facilities, funds, and data.

##### **4.6.1 Personnel Requirements**

When a new item of GSE is being procured for introduction into the Navy inventory, the Naval Air Maintenance Training Group (NAMTRAGRU) reviews the item and the

associated training requirements to determine whether training can be accomplished within the existing schedule of courses. If the equipment is unique, or vastly different from previous equipments, the NAMTRAGRU may request assistance from NAVAIR for EISO/WPRD to identify personnel and training requirements.

If the GSE is a new item being procured under the provisions of WR-30, a determination of the personnel numbers and skills required to keep the GSE servicable is made by NAILSC. This is accomplished by applying the information in the Classification Manual (NAVPERS 18068), and by observing maintenance of similar equipments in the operational inventory. Appendix A, Exhibit VII, of AR-30 requires that the manufacturer list the required maintenance tasks. This list is also used by NAILSC in establishing the personnel requirements.

Personnel skill requirements are stated in the following manner: The individual's specialty is indicated by two (or three) letters. An Aviation Support specialist, grade E-1 through E-5, is designated "AS". A third letter will be added to the designation to indicate further specialization. This third letter may be "E" for electric, "M" for mechanic, or "H" for hydraulic. Above level E-6, the last letter is dropped, since individuals above grade E-6 are considered to have capability in all areas.

For other specialties, a two-letter, four-digit code, called the Navy Enlisted Classification (NEC) is used. For example, a man trained to maintain the AWG-10, Missile Control System (Radar) at the organization level would have a specialty-NEC of AQ-7981. An individual trained to do intermediate maintenance on the same system would be designated AQ-7982. NEC codes are listed in the Navy Enlisted Classification Manual (NAVPERS 15105-Q).

NAILSC has recommended that no NEC be associated with the AS specialties since the tasks performed by these individuals are general in nature, the E, M, and H designations are sufficient for proper identification of the required skill.

#### 4.6.2 Training Responsibilities\*

Support Equipment training is a continuous requirement resulting from changes in weapons and related equipments and personnel turnover. To meet this requirement, extensive advance planning and well-coordinated efforts are required. The lead time necessary for personnel procurement and training is as demanding as it is for the weapon system itself. Accordingly, consideration of training requirements and plans for meeting them must be made concurrently with development, production, and delivery of the equipment. Furthermore, it is a matter involving engineers and administrators in addition to training and personnel specialists. Responsibility for GSE system design, development, and procurement includes responsibility for training. Adequate training for operation and maintenance of GSE is vital in obtaining optimum weapon system availability and achieving true cost effectiveness. Lack of properly trained operators or maintenance crews can result in excessive system "down time", and nonavailability of multimillion dollar equipments at times when they are most needed.

Training requirements for GSE will vary, depending on the type of equipment and its intended location. To meet these requirements, the Chief of Naval Operations (CNO)

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\*Portions of the text of this section are adapted from NAVAIRINST 5430.2.



establishes overall policies and procedures and promulgates training plans for weapon systems training. Within the Office of the Chief of Naval Operations, responsibility depends upon the type of weapon system involved. The Deputy Chief of Naval Operations (DCNO) (AIR) is directly responsible for all weapon systems training associated with aviation and air-launched weapons. In addition, he is responsible for individual Combat Information Center (CIC) and Air Control equipment training. The DCNO (Fleet Operations and Readiness) is, except for reserve personnel, responsible for all surface/subsurface weapon systems training. His office also coordinates the amphibious training of Marine Corps, Air Force, and Army units.

The Chief of Naval Personnel participates in planning and recommending personnel levels and training for all types of weapons. The Chief of Naval Personnel has authority for the technical direction and support of shore-based training (other than Aviation, Medical, and Naval Reserve) under the policy direction of the Chief of Naval Operations. The Chief of Naval Personnel delegates to Fleet Commanders in Chief specific functions and authority concerning the shore-based training that directly supports the Fleet.

The Chief of Naval Material (CNM) is responsible for approval of Technical Development Plans (TDPs) and for providing CNO and CMC with timely advice on weapon systems training and related personnel matters and for providing the Operating Forces with timely technical guidance and the material support needed for effective weapons system employment. CNM assigns the Principal Development Activities (PDA) and supporting activities to prepare Development Plans or related documents for CNO-promulgated Operational Requirements.

#### 4.6.2.1 CNATRA

The CNO meets its responsibility for training operating and maintenance personnel primarily through the Naval Air Training Command, headquartered at Pensacola, Florida, and headed by the Chief of Naval Air Training, (CNATRA). In addition to the training conducted by subdivisions of this activity, some training is accomplished by support facilities within other organizations, such as the NARFs.

CNATECHTRA Training for GSE is accomplished by the Naval Air Technical Training Command, headquartered at Naval Air Station, Memphis, Tennessee, under the Chief of Naval Air Training (CNATRA). Training within this command is generally divided into five categories.

1. **Class P (Preparatory).** Class P schools and course are designed to provide training required for all aviation ratings and necessary to fulfill the military requirements for advancement to Airman.
2. **Class A (Basic).** Class A schools and course, in general, provide the basic technical knowledge and skills required to prepare personnel for entry-level skills for their individual ratings.
3. **Class B (Advanced).** Class B schools and course provide advanced technical knowledge and skills required to prepare personnel for the higher petty-officer rates, with emphasis on the needs of the Operating Forces.
4. **Class C (Specialized).** Class C schools and courses are designed to provide training in skills or techniques that are not peculiar to any one rating. The curriculum does not include the full requirements for advancement in rating. In many of the advanced schools, specialized courses are conducted to train personnel in a particular requirement of a rating to meet the functional needs of the activity.

5. **Class O (Officer).** Class O schools and courses are those conducted for officers and provide instruction in technical specialties to meet the needs of Naval aviation.

NAMTRAGRU and NAMTRADETs — The Naval Air Maintenance Training Group (NAMTRAGRU) is a field activity under the command of the Chief of Naval Air Technical Training. Its function is to train Naval personnel in the maintenance of selected GSE. This responsibility is discharged through Naval Air Maintenance Training Detachments (NAMTRADETs). Currently, there are two NAMTRADETs for GSE; one at Naval Air Station, Jacksonville, Florida, under operational control of COMNAVAIRLANT, and the other at Naval Air Station North Island, San Diego, California, under the operational control of COMNAVAIRPAC. Both NAMTRADETs give instruction up to and including, intermediate-level maintenance.

#### 4.6.2.2 NAVAIR

NAVAIRSYSCOMHQ, as a Principal Development Activity (PDA), has responsibility for the following:

1. Identifying training and personnel requirements associated with weapon systems and related GSE equipment.
2. Developing recommended training plans and reporting on progress.
3. Ensuring preparation and update, at least annually, of the Training Equipment Requirements (TER), of major aviation commands, for the current and five ensuing fiscal years.
4. Providing financial support for factory training or contractor plant services, personnel research, and training aids and materials. The support for training aids and materials includes funding for the following:
  - Procurement, modification, modernization, major repair and overhaul, and initial spare parts and test equipment normally issued with the equipment or weapon for service use.
  - Installation of the equipment, including alteration, conversion, and rehabilitation of facilities incident to installation (but not of such magnitude as to constitute "Military Construction" projects).
  - Initial training incident to the procurement of equipment and furnishing of training aids produced by the contractor during production of new equipment, preparation of technical or instructional publications, and conduct of instructor training. The contractor will be advised by NAVAIR of training requirements identified by NAMTRAGRU.
  - Maintenance and operation manuals, and supplementary "learner level" manuals when required for training in new weapon systems, equipments, or for major modifications to service equipment.
  - Training aids pertaining exclusively to an equipment, weapon, or weapon system as a part of the system development in accordance with Technical Development Plan or similar document.

Within the Logistics and Fleet Support Group of NAVAIR, the Weapons Training Division (AIR-413) has primary responsibility for preparing the Personnel and Training Plan. When a TDP is required, it must adequately identify training and personnel requirements.

The Plans Division (AIR-101) alerts AIR-4011. If there is to be an APM(L), AIR-4011 notifies the appropriate APM(L) in AIR-417 of new GSE being developed. The APM(L) will, in turn, notify the Weapons Training Division. As part of this requirement, the Plans Division provides the Weapons Training Division through the APM(L), with operational requirements documents, including Specific Operational Requirements, Advanced Development Objectives, and Tentative Specific Operational Requirements. The cognizant Project Manager, Coordinator, Officer, Engineer, or designated activity (AIR-PM/PMA/PC/03/05/Other) assists the Weapons Training Division in preparing the Personnel and Training Plan Section of the TDP by providing basic technical data and any personnel and training information on the system. When the Personnel and Training Plan Sections are completed, they are submitted to the APM(L) or other cognizant activity for inclusion in the TDP.

When a TDP is not required for an equipment change or a new development, but personnel and training requirements are inherent in the project, the cognizant APM(L) notifies the Technical Training Division and assists in preparing information for submission, through channels, to CNO. The Weapons Training Division prepares for submission to CNO, via CNM, and with the assistance of the APM(L), the information (in the proper format) required for inclusion in the Personnel and Training Plan Section of a TDP. (The letter of transmittal, addressed to the CNO by the Commander, NAVAIRSYSCOM, is submitted to the Deputy Commander for Plans and Programs, and Comptroller (AIR-01) for final approval and signature.) For procurement of ground support equipment, the Weapons Training Division submits to the APM(L) in AIR-417 a statement of training requirements for inclusion in the procurement document. The statement should include, as a minimum, the requirement for the contractor to respond to a future request to quote on factory training in accordance with AR-25.

AIR-4135 has the direct responsibility for planning and identifying requirements for contractor-conducted training courses, review of training requirements submitted by NAMTRAGRU or the contractors, and identification of the requirement for training panels, etc. AIR-4135 determines which should receive a given type of training, and the activity which can conduct training courses most expediently (NAMTRAGRU, NARF, or NETS). Budget estimates are prepared by AIR-4135, and funding is accomplished through that office.

#### **Factory Training**

Because of high costs, factory training courses are normally restricted to instructor personnel. Occasionally, however, on quick-reaction contracts, training requirements are not considered until just prior to incorporation of the equipment into the operational inventory. When this happens, maintenance personnel may also be included in factory training classes along with the first instructors, in order to avoid the possibility that the system will be unavailable for lack of trained personnel.

Once the requirements for contractor training are established, the contractor is requested to furnish a proposal for this training, (if it was not included as a line item in the contract during the initial hardware procurement). AR-4135 then requests Naval Air Engineering Service Unit at Philadelphia, Pennsylvania (NAESU) to prepare a contract for the manufacturer, based on his proposal, but incorporating exceptions or changes as AIR-4135 deems appropriate. Normally, this information is transmitted to NAESU by letter, to which a summary form (Figure 4-41) may be attached. The pertinent information indicated on the form must be stated, regardless of the method of transmittal. Simultaneously, AIR-413D releases the estimated required funding to NAESU from the appropriate account and NAESU completes the contract through NAEC.



Item
1. Contractor _____
2. Contractor Proposal Ser/Date _____
3. System/Equipment _____
4. Course _____ Length _____
5. Training Location _____
6. No. Students per Class _____ No. Classes _____
7. Desired Start Date _____ Planned NAESU Quotas _____ Yes ___ No ___
*8. Funding Data (A) Subhead _____ (B) BPN _____
**9. Equipment Use Permission-Yes ___ No ___ Responsibility _____
10. Training Aids/Material Required-Yes ___ No ___
11. Disposition Training Aids/Material _____
12. Disposition Reproducible Masters _____
13. Refurbish Equipment-Yes ___ No ___ Responsibility _____
14. AR-25 Applicable-Yes ___ No ___
15. Contract Award Notification to Project Officer-Yes ___ No ___
16. AIR-413 Project Officer _____ Phone _____
17. Copy of Contract to Project Officer-Yes ___ No ___
18. Copy of Contract to Other-Yes ___ No ___ Whom? _____
19. Remarks:
<p>*Indicate if funding previously furnished NAESU/or in process</p> <p>**Identify date GFE can be made available for training.</p>

Figure 4-41. CPS TRAINING PROPOSAL DATA

If government furnished equipment (GFE) or Navy Publications will be required for the contractor course, it is the responsibility of AIR-4135 in conjunction with AIR-417 or AIR-412, to arrange that these items be supplied when and where required by the contract.

#### **Procurement**

Normally, procurement requirements for GSE are definite enough to allow competitive procurement. Because of the large quantities of such items and the common technology employed, contractors can competitively price the bid by following the letter of the IFB, RFQ, RFP, etc. It is important, therefore, that the request or contract incorporate requirements for contractor training. In the past, these provisions were often omitted, with the result that production awards were made to contractors who had no facilities for, or knowledge of, training techniques and who submitted "no bid" replies to later requests for factory training.

Advance notice to AIR-4135 that a new GSE item is being considered will allow proper planning and procurement of sufficient training equipment. To accomplish this, AIR-4135 holds a Factory Training Planning Conference, to which representatives from the Type Commanders, fleet (OPEVAL, TECHEVAL, etc.), NAMTRA, NAILSC, and the contractor are invited. Exhibit VII of AR-30 (when incorporated as a provision of the contract) requires the contractor to describe the specific maintenance steps which are required to repair the system. During this conference, NAILSC relates the specified maintenance steps to personnel requirements. With this information, and knowledge of the planned quantities and locations of the new equipment, the actual training sites are determined. Usually, the equipment (or squadron) home base or a GSE NAMTRADET is selected as the training site. In the case of shipboard personnel, training is the task of the NAMTRADETs. The number of instructors is usually dictated by the number of training sites.

Training requirements for a limited-quantity GSE procurement are established in a different manner than those for common equipment. Limited-quantity equipment is typified by missile support equipment, of which only three to twelve items are the total number purchased. These items are therefore covered by the initial R&D contract. In such instances, the procurement activity (AIR-534) informs the appropriate APM(L) a reasonable length of time in advance of the intended procurement. The APM(L), in turn, must notify the Weapons Training Division (AIR-413) to permit appropriate planning action. These actions will allow simultaneous establishment of the fleet and training quantities during the planning phase, or the establishment of teach-around capabilities when the procurement will not support allocation of equipment to the training detachment.

#### **NAILSC and NAESU**

One of the support activities assisting the Training Command in its function is the Naval Aviation Engineering Service Unit (NAESU), headquartered at Philadelphia, Pennsylvania. NAESU is a field activity of NAILSC and is charged with the responsibility for furnishing on-site engineering assistance in the installation and maintenance of aviation systems and equipment to activities supporting, maintaining, overhauling, or having cognizance of such systems and equipment, including the GSE required by these activities. On-the-job training of maintenance personnel in the proper maintenance, repair, and operation of systems and equipment, with particular emphasis on new models of such systems and equipment, is an NAESU requirement. NAESU is also responsible for supply support to NAEC, which usually contracts for factory training requirements as identified by AIR-4135. NAILSC serves as

administrater for NAESU personnel and activities. NAESU furnishes Engineering and Technical Services (ETS), including advice, instruction, and training in the installation, operation, and maintenance of weapons, equipment, and systems used by the Navy and Marine Corps, as described in NAVAIRINST 4350.1. These services are provided by qualified Department of Defense personnel and by employees of commercial or industrial companies. The NAESU structure and organization are shown in Figure 4-42.

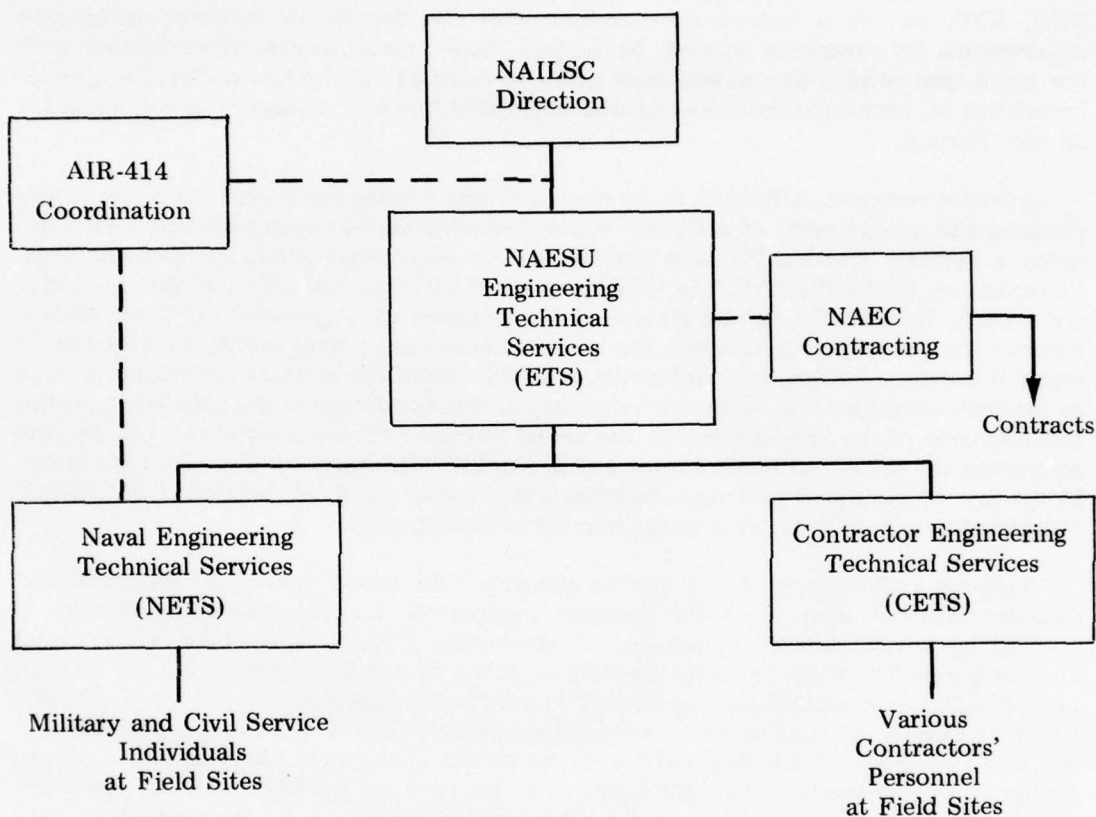


Figure 4-42. NAESU ORGANIZATION

When Navy Engineering and Technical Services (NETS) are available, they shall be used to provide on-job-training (OJT). This includes Navy and Marine Corps civilian and military personnel technically qualified to provide advice, instruction, and training to support the installation, operation, and maintenance of Department of the Navy weapons, equipment, and systems.

Contractor Engineering and Technical Services (CETS) of commercial or industrial companies may be used to provide advice, instruction, training, and other engineering and technical services to Department of the Navy personnel in the installation, operation, and



maintenance of Navy and Marine Corps weapons, equipment, and systems. These services include development of technical skills and capabilities necessary to install, maintain, and operate such equipment in a high state of military readiness.

CETS personnel provide services in the following three categories:

- **Contract Plant Services (CPS).** Those engineering and technical services provided to the Department of the Defense by manufacturers of military equipment or components. These are provided in the manufacturer's plant and other facilities by trained and qualified engineers and technicians employed by the manufacturer. The specialized skills, knowledge, experience, and technical data of the manufacturer are contracted for by the Department of Defense for the purpose of acquiring system and component knowledge, training and training-aid programs, and other essential engineering and technical services relating directly to the development among Department of the Navy personnel of the technical skills and capability required for installing, maintaining, and operating such equipment. ("Factory" training is within the scope of CPS).
- **Contract Field Services (CFS.)** Those engineering and technical services provided to the Department of Defense by commercial or industrial companies on site at Navy and Marine Corps locations by trained and qualified engineers and technicians. CFS personnel must possess specialized knowledge, experience, and skills, or have access to information covering the installation, operation, and maintenance of Navy and Marine Corps weapons, equipment, and systems. Contractors providing CFS personnel must have adequate staff, finances, organization, and technical capability to assure the economical and competent performance of their contracts. ("On-the-job" training and "on-site" training are within the scope of CFS.)
- **Field Service Representatives (FSR).** An employee of a manufacturer of military equipment or components who provides a liaison or advisory service between his company and the Department of the Navy users of his company's equipment or components. This service is an important element in providing a channel for technical communication between the producer and the Department of the Navy field user. These personnel are not to be hired for instruction or on-the-job training on a new system, or to augment services and functions of CPS and CFS. However, they may provide immediate answers to questions by Navy personnel when they possess technical information on the subject.

In administering the NAESU activity, AIR-41413 attempts to assure that a sufficient number of NETS personnel are trained on each system or equipment so that on-the-job training can be accomplished within the Navy and contracting for CETS/CFS will be unnecessary.

#### **NAVAIREWORKFAC**

The Naval Air Rework Facilities (NAVAIREWORKFACs or NARFs) conduct some short-term courses in the overhaul and repair of specific equipments. Upon request of the appropriate NAVAIRSYS COMREP (LANT/PAC/Training Command) NAVAIREWORKFACs will establish courses to instruct fleet personnel in the performance of tasks the NARFs have mastered as part of their normal work requirements. Certain other short-term, nonscheduled courses may also be conducted.

### 4.6.3 Typical Procedures

The following is a step-by-step summary of the procedures described above. It must be remembered however, that these procedures are of a general nature, and specific items of GSE may dictate exceptions to the procedures.

- NAILSC determines the number of personnel and the skill levels required to support a system (per squadron, etc.).
- AIR-4135 trains the number of instructors specified by NAMTRAGRU.
- AIR-4135 requests a proposal for factory training from the contractor when the requirement is identified.
- The contractor's proposal is modified by AIR-4135, as deemed appropriate, usually after review by the NAMTRADETs.
- AIR-4135 requests the NAESU contracting group to negotiate a contract, based on the proposal, but including the necessary changes.
- AIR-4135 releases estimated funds for the contract to NAESU from the appropriate account.
- If it is known that the scheduled factory training classes will not be filled by intermediate-maintenance-level instructors, AIR-4135 informs AIR-41413 or the appropriate Type Commanders of the openings.

## 4.7 TECHNICAL MANUALS AND PUBLICATIONS

Adequate, and accurate engineering drawings and specifications are vital to attaining a usable end item, but their significance is more applicable during the design/acquisition or reprourement phases of the program, and has a minimum application to the day-to-day maintenance problems. Therefore, this section will address the subject of technical manuals and publications on which the Logistics Manager must depend for maintenance support.

### 4.7.1 Responsibilities

The Technical Manual Program within the Navy is part of a larger program implemented by the Department of Defense, to provide uniform policies and guidance. The responsibility for the direction of DoD policy regarding technical manuals is delegated to the military secretariats. The responsibility for implementing DoD policy is delegated by the SECNAV to the various Systems Commands. SECNAV administers the Technical Manual Program by delegating authority to high-echelon personnel, such as Assistant Secretaries of the Navy, Chief of Naval Operations, Chief of Naval Material, and Commanding Officers of various commands. SECNAV assigns responsibility for direction of policy to assistants; the Chief of Naval Material (CNM) is responsible for the implementation and coordination of the Technical Manual Program. CNM, in turn, assigns responsibility in specific areas to each of his six subordinate commands.

#### NAVAIR

The responsibility for establishing policy for the NAVAIR Technical Manual Program and the rendering of policy decisions, based on interpretation of DoD/SECNAV/CNM instructions and directives, is assigned to NAVAIRSYSCOM. In the execution of

DoD/SECNAV/CNM instructions, NAVAIRSYSCOM has overall authority in matters concerning technical manual support of weapons, weapon systems, and equipment. In addition, NAVAIR evaluates and analyzes Technical Manual Program policy and appraises managerial effectiveness.

Responsibility for formulating Technical Manual Program policies is centralized in NAVAIR under the Technical Documentation Division (AIR-415). These policies govern all aspects of the program. Specifically, AIR-415 is charged by NAVAIRINST 4000.9 with responsibility in the following 14 areas:

1. Management of technical logistics data for integrated logistics support planning and fleet requirements.
2. Budgeting requirements for logistics data and assuring that requirements are funded.
3. Complete management of in-service data.
4. Performing as the NAVAIR Technical Manual Program Manager, including development, coordination, and implementation of plans, policies, and specifications for a complete technical manual program.
5. Overall liaison, and technical guidance and support to the Naval Air Technical Services Facility and other field activities performing functions in support of NAVAIR logistics data and documentation.
6. Developing and coordinating procedures for the technical directives system and maintaining status records of directives.
7. Serving as the focal point within AIR-04 for logistic fleet support data requirements for configuration management, particularly configuration status accounting.
8. Providing for the operation of the NAVAIR documentation repository.
9. Serving as the Command focal point for printing and publication policy.
10. Serving as the Command focal point for technical data Cost Reduction Program.
11. Providing a central AIR-04 office for review coordination of technical data instructions promulgated by AIR-05.
12. Initiating, coordinating, and participating in programs for improved technical logistics data management in NAVAIR.
13. Providing programs for improving usability of fleet data.
14. Coordinating logistics data requirements within AIR-04.

#### NATSF

Much of the responsibility of accomplishing the tasks listed above for AIR-415, is delegated through NAILSC to the NATSF at Philadelphia, Pennsylvania. NATSF is a field activity of NAILSC. While AIR-415 establishes the AIR-04 policies and directives for meeting requirements of NAVAIRINST 4000.9, NATSF actually implements these policies and directives in the areas of their assigned responsibilities.

Briefly, NATSF has the following eight specific areas of responsibility:

1. Providing management for NAVAIRSYSCOM technical manual program, including planning, presentation of requirements, production, distribution, and change control.



2. Procuring and controlling distribution of aeronautical training literature for DCNO (AIR).
3. Establishment and operation of a data storage and retrieval bank for Naval aeronautic systems, and development of new systems and equipment for storage, retrieval, reproduction, and distribution of engineering drawings and technical logistic data.
4. Establishment of an aeronautical maintenance management information center.
5. Provision of assistance in the development of maintenance support plans and preparation of technical logistic data requirements concerning aeronautical weapons systems and associated support equipment.
6. Provision of configuration status accounting capability.
7. Administration of funds for technical publications for NAVAIRSYSCOM.

In terms of technical manuals for GSE, NATSF accomplishes the day-to-day tasks, under the policy direction of and subject to review and approval by AIR-415.

#### 4.7.2 Requirements Determination

Technical manuals are contractually scheduled for concurrent delivery with hardware. The main function of NAVAIR in initial Technical Manual acquisition is to inform the contractor which data items will be required to assure on-time delivery of manuals. Normally, this is accomplished well in advance of actual procurement, and is a part of the procurement request. It is important that the request of those data items that will be required be identified accurately and that all others be excluded. This will make possible the proper use of Navy funds, and will allow all bidders to respond in a fair, competitive manner to the actual requirements.

The publication requirements in the purchase request include (a) the Technical Manual Contract Requirement (TMCR), and (b) DD Form 1423. Each of these is discussed separately in the following subsections.

##### 4.7.2.1 Technical Manual Contract Requirement

The TMCR is the document which identifies the manuals that will be required under a contract. The TMCR is in narrative form. Specific conditions can be easily incorporated into the statements of the TMCR to allow for the equipment peculiarities that are often associated with GSE. Figure 4-43 is a sample of the first two pages of a sample TMCR for GSE, showing alternates on which a contractor may bid.

The TMCR for any purchase request or contract is assigned a serial number when it is formulated. The TMCR may then be divided into as many parts as necessary to complete the intended procurement. Each part will be sequentially numbered and will generally cover a specific portion of the data. Typically, Part I is concerned with the manuals, Part II with the MRC cards, and Part III with the Data Sheets. The later portions may be conditioned on successful completion of earlier events, and on receipt of formal authorization by Navy to proceed.

Each numbered part may then be divided into the required number of subparts; each being designated alphabetically. Typical subparts are listed below:

##### A. TO BE FURNISHED:

This subpart will list the manuals, reproducibles, and reproduced copies to be delivered under the contract.

PR 2473

Date: 26 March 1969

**TECHNICAL MANUAL FOR EQUIPMENT:**

Cleaning System, Ultra Sonic, Hydraulic Filter Elements, Shipboard

**A. TO BE FURNISHED:** (Bidder Shall Specify Whether the Quotation Submitted is for Alternate A.1(a), A.2(a) or A.3)

1. (a) Three (3) rough drafts, one (1) reproducible copy and one (1) set of offset negatives of the following technical manual to cover the above equipment:

Organizational, Intermediate and Depot Maintenance Manual with Illustrated Parts Breakdown\* and operating instructions.

- (b) One (1) reproducible copy and one (1) set of offset negatives of change pages/revisions to keep the above technical manual current to reflect all changes made in the above equipment during the life of this contract.

- (c) Twenty (20) blue line copies or equivalent of the above manual. (In no case shall the contractor reproduce more than twenty-five thousand (25,000) impression-pages).

*Rough Drafts and Blue Copies Required if Quoting on A.1, A.2, or A.3*

2. If similar equipment is covered in technical manual(s) previously furnished to the Navy, which can be changed to include the above equipment, the following should be furnished:

- (a) One (1) reproducible copy and one (1) set of offset negatives of change pages/revisions to the following technical manual(s) to add the above equipment:

Technical Manual Number(S)

Title(s) of Technical Manual(S)

\_\_\_\_\_  
\_\_\_\_\_

- (b) One (1) reproducible copy and one (1) set of offset negatives of change pages/revisions to keep such technical manual(s) current to reflect all changes made in the above equipment during the life of this contract.

or

3. If identical equipment is covered in technical manual(s) previously furnished to the Navy, the following should be furnished to keep such technical manual(s) current to reflect all changes made in the equipment during the life of this contract:

- (a) One (1) reproducible copy and one (1) set of offset negatives of change pages/revisions to the following technical manual(s):

Technical Manual Number(s)

Title(s) of Technical Manual(s)

\_\_\_\_\_  
\_\_\_\_\_

\*Specification MIL-M-008910A(AS) dated 7 February 1968 applies to all Illustrated Parts Breakdowns furnished under this contract.

Figure 4-43. TECHNICAL MANUAL CONTRACT REQUIREMENT SERIAL NO. XXX-70 PART I OF II PARTS

**B. DESCRIPTION AND SPECIFICATIONS:**

This subpart will identify the applicable military specifications applicable to each type of manual.

**C. DELIVERY AND PACKING:**

This subpart will identify where and when each type of manual should be delivered, and the military specification governing packing.

**D. RETENTION OF REPRODUCIBLE COPY:**

This subpart describes who will retain reproducible copies, for how long, and for what purpose.

**E. CHANGES, REVISIONS, AND NEW MANUALS:**

This subpart describes how and when changes, revisions, or new manuals will be made effective.

**F. CITATION OF GOVERNMENT PRINTING OFFICE WAIVER:**

This subpart gives the GPO waiver number and briefly explains the limits of the waiver under public law.

**G. IN-PROCESS REVIEW, VALIDATION, AND VERIFICATION PROGRAM:**

This subpart describes the in-process review, validation, and verification procedures for the manuals submitted.

**4.7.2.2 DD Form 1423**

Data requirements under a contract should be listed on a DD Form 1423 whether or not they are contained in the specifications, military standards, technical orders, purchase descriptions, or other comparable documents that form a part of the contract. The DD Form 1423 constitutes the primary contractual list of requirements for the amounts and kinds of technical data (manuals and drawings), and information required from the contractor. A sample DD Form 1423 is shown in Figure 4-44. The Form is divided into two sections. The left portion, blocks 1 through 16, is retained and becomes a part of the contract. The right portion, blocks 17 through 26, is a detachable stub.

Items 1 through 18 must be completed by the procuring agency, when applicable, in accordance with Chapter V of NAVMATINST 4000.15. The contractor must complete items 23 through 26 in accordance with Chapter VI of the same Instruction. The contractor's input to this form is only an estimate, and is not a binding item of the contract. However, since all bidders must comply with the same basic guidelines, the evaluating agencies have a basis for comparing the quotes.

There should be a single line entry on the DD Form 1423 for each manual requirement identified in the TMCR. However, the completed DD 1423 will include many additional line items, since the form includes all data (not just manuals) required under the contract.

Approval/sign-off authority for the Navy's portion of the DD Form 1423, for GSE procurements rests with AIR-415E1.



ATTACH NO. _____ TO EXHIBIT _____		CONTRACT DATA REQUIREMENTS LIST										SYSTEM ITEM _____	
TO CONTRACT / PR _____		CATEGORY _____										CONTRACTOR _____	
1. SEQUENCE NUMBER	2. TITLE OR DESCRIPTION OF DATA	3. SUBTITLE	4. CONTRACT REFERENCE	5. AUTHORITY (Date Item Number)	6. TECHNICAL OFFICE	7. APP. FOR USE	8. DATE OF SUBMITTAL	9. DATE OF SUBSEQUENT REVIEW	10. DATE OF SUBSEQUENT REVIEW	11. DATE OF SUBSEQUENT REVIEW	12. DATE OF SUBMISSION	13. DATE OF SUBMISSION	14. DISTRIBUTION AND ADDRESSES (Address - Regular Copies/Para Copies)
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
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99													
100													

DD FORM 1423 5/14 0102-014-1503  
 REPLACES EDITION OF 1 APR 66, WHICH IS OBSOLETE.  
 PAGE \_\_\_\_ OF \_\_\_\_ PAGES

Figure 4-44. DD FORM 423: CONTRACT DATA REQUIREMENTS LIST

#### 4.7.3 Budgeting

Requests for budget estimates are issued for several reasons, including incorporation in proposed plans submitted to high-level authority for decisions/trade-offs, preparation of NAVAIRSYSCOM portion of the Five Year Defense Program (FYDP) and the Navy's Budget for each Fiscal Year, supplemental budget submission or resubmission based on decisions from higher authority, apportionment requests, and Program Change Proposals/Requests. Requests for official budget submissions to be incorporated in the Navy's budget submission are issued by the Financial Management Division (AIR-102), and by NAVAIR notices and memoranda. Requests for planning purposes may emanate from the Weapon System Project Managers for individual weapons systems. The official calls and the planning drills are transmitted by memoranda into individual weapon system price-out requests by the Weapon System Project Managers. These memoranda are processed through NAVAIRSYSCOM and forwarded to AIR-410, the technical manual portion is forwarded to AIR-415. Each request normally includes pertinent available information on which to base the estimates, — the purpose of the request, the preliminary procurement plan with delivery schedule, the known project milestones, preliminary configuration information, planned baseloading, and requirements for maintenance support. The completeness of this planning data has a direct bearing on the adequacy of the technical manual budget estimates. In addition, the processing time available for the technical manual portion is normally of short duration.

The Project Coordinator at NATSF who has been assigned the technical manual project initiates the budget estimate. He analyzes the planning data, technical memoranda, and other information, and considers the many variables that comprise the project. The elements considered during preparation of an estimate are as follows:

- Weapon system model designation/configuration
- Procurement plan (FY buys)
- Weapon system milestones
- Production-delivery time span
- Maintenance support plan
- Extent of technical manual coverage
- Extent of contractor's responsibility
- Experience with similar systems

Beginning with the Project Charter, the identification of the weapons system progresses from a general description to the assignment of a definitive model designation. In the same way, the specific configuration is defined. For new models, only general nomenclature may be available at the time of the first budget call. However, in time, the Master Configuration List is received from NAVAIRSYSCOM. This list contains a breakdown of the weapons system into Government Furnished Aeronautic Equipment (GFAE) and Contractor Furnished Equipment (CFE). This provides information relative to the complexity of the weapon system.

The procurement plan states the number of weapons system to be included in each FY buy and the number of FYs for which budget estimates are required.

Knowledge of the project milestones provides the estimator with a base for preparing the technical-manual budget. At each milestone, a specific type of technical-manual support will be required. Correlating the milestones with the production span of the project will indicate the type of manuals required, the relative stage of completion, and the scope of change/revision effort for each FY buy.

Basic information pertaining to the maintenance support plan is also needed. This includes delineation of the levels of maintenance and the extent of contractor-augmented support. Basic information also includes the technical data to cover the maintenance and training necessary for the operation, testing, and maintenance of GSE.

Information regarding the responsibility of the contractor for components and GSE manuals is also required. When GSE is of the off-the-shelf type (already available on the open market) the existing commercial manuals are used whenever possible.

If the system being budgeted is similar to a previous system, or if the contractor is the same, a general basis for evaluation is available. In addition, if the technical manual support (milestones, production span, etc.) for a previous system is similar to the one being estimated, a direct correlation can be made. Experience is also helpful in determining whether modifications of current equipments may be made to reduce overall costs. If the system is a modified version of an Air Force or Army system (joint usage), use of existing support is to be evaluated in determining support costs of the system.

#### 4.7.4 Technical Manual Approval

To assure that the technical manuals received are adequate and accurate, NATSF establishes a Technical Manual Management Team (TMMT) composed of members from NATSF, the cognizant contract administration office, NAVAIRSYSCOMREPs, and, when considered necessary, from NAILSC or other activity.

The TMMT is a review team of qualified personnel selected to monitor the technical-manual efforts. When the procurement incorporates the provisions of AR-30, the TMMT functions as a subcommittee of the ILS team. The ILS concept as it applies to technical data is described in Chapter 8 of DoD Directive 4100.35. This directive requires that Technical Data Plan Requirements be identified at the inception of the program and that trade-offs be properly evaluated. The TMMT must evaluate technical data proposals and approve the technical data plan. It must also verify the suitability of the technical data or identify deficiencies and implement corrective action for the latter.

The TMMT, which operates within the policies, requirements, and specifications established by NAVAIR, follows the three procedures defined in NAVAIRINST 5600.9 in judging the adequacy of technical manuals. The first procedure, the "in-process review", is a review of technical manuals while they are being prepared. In-process reviews are held to provide guidance to the preparing activity (contractor) to assure that manuals are being developed in accordance with the contract requirement and the approved maintenance and support philosophy. The in-process review is normally conducted at the preparing activity's facility or his vendor's facility. Reviews may be performed at any time during manual development, however, they must be completed prior to the preparation of the negatives from which printing plates are made.



The second procedure is "validation", a process by which the contractor or cognizant preparing activity tests a manual for technical adequacy and accuracy. During validation, contractor personnel perform the operational maintenance procedures contained in the manual, including those for checkout, calibration, alignment, and removal and replacement. The contractor personnel also perform the procedures on the associated checklists. All disassembly, reassembly, or unscheduled removal and replacement procedures are validated by actual performance or simulation. Data, such as source codes in IPBs, schematic diagrams, wiring data, and descriptive data contained in all manuals is checked against current source data. Validation is normally conducted at the preparing activity or vendor's facility. If extenuating circumstances prevail, validation may be conducted at an operational site, concurrently with verification.

"Verification" is the third process by which the adequacy of a technical manual is tested and proved under NAVAIRSYSCOM jurisdiction. Verification consists of actual performance by the test and evaluation activity or using command personnel of selected operating and maintenance procedures and associated checklists (including checkout, operation, calibration, alignment, and scheduled removal and replacement of parts or components instructions). The items to be verified are selected for their importance and complexity.

#### 4.8 REWORK

The maintenance and control of GSE is an integral part of the task of maintaining aircraft.

Maintenance of GSE is based on ownership. This equipment is maintained or repaired by using and supporting activities in accordance with *Chapter Three of NAVAIRINST 4700.2*. When repair of a GSE failure is beyond the capability of the assigned local maintenance activity, the next higher level maintenance activity performs the repair. Repairable equipment is not returned to supply departments in a failed condition, for subsequent return to overhaul points, until every practical effort has been made to repair the equipment at the local level. The S&M code provides guidance concerning the maintenance level authorized to repair, replace, and condemn the GSE and component parts.

##### 4.8.1 Facilities

Depot-level maintenance applies to those items that require maintenance by industrial or heavy supporting activities. Certain GSE is scheduled for depot-level maintenance at NAVAIREWORKFACs or NARFs. The NARFs perform the scheduled overhaul of GSE and repair serious failures. Locations of the seven NARFs in the continental United States are listed in Table 4-7, which also lists the abbreviation of the NAVAIRSYSCOM representative who has cognizance of each NARF and the NARF abbreviations as they appear in the ASO Master Repair List.

##### 4.8.2 Responsibilities

NAVAIR (Headquarters) is responsible for preparing maintenance instructions and procedures for implementing a maintenance program. As stated in Section 4.1.2, when the provisions of AR-30 are incorporated into a contract for new GSE, the contractor is

*Table 4-7. NAVAL AIR REWORK FACILITIES*

Location	Abbreviation	Cognizance
Naval Air Station Quonset Point, R.I.	QUONST	NAVAIRSYSCOMREPLANT
Naval Air Station Norfolk, Va.	NASNOR	NAVSIRSYSCOMREPLANT
Naval Air Station Jacksonville, Fla.	JAX	NAVAIRSYSCOMREPLANT
Marine Corps Air Station Cherry Point, N.C.	CHY PT	NAVAIRSYSCOMREPLANT
Naval Air Station Pensacola, Fla.	PNSCLA	NAVAIRSYSCOMREPLANT
Naval Air Station North Island, Calif.	NOR IS	NAVAIRSYSCOMREPAC
Naval Air Station Alameda, Calif.	ALMEDA	NAVAIRSYSCOMREPAC

responsible for submitting an Integrated Logistics Support Management Plan (ILSMP) which will include a maintenance plan. Whether or not there is an ILSMP, when new GSE is being procured, the maintenance philosophy must be established by the appropriate APM(L). Many practical decisions are based on this maintenance philosophy during the initial provisioning conference. If the NARF has not previously been designated by NAVAIR, the NAVAIRSYSCOMREPLANT/PAC usually recommends to AIR-4146C/AIR-417 the NARF to be the Designated Overhaul Point (DOP) for new GSE prior to the provisioning conference.

The assignment of DOPs for GSE is the responsibility of AIR-4146C, and is normally made on the recommendations of NAVAIRSYSCOMREPLANT/PAC. Several considerations are taken into account in selecting a DOP. First, if the item of GSE is peculiar to an aircraft, the GSE will typically be assigned to the same NARF as the prime equipment, (unless this might overload the facility). For new common GSE, conferences may be held between the NAVAIRSYSCOMREPs and the NARFs to recommend an appropriate assignment to AIR-4146C.

When the workload on some item becomes too great at a particular NARF, or if the utilization rate changes appreciably between NARFs, NAVAIRSYSCOMREPLANT/PAC informs AIR-4146C, who reassigns the overhaul point. This assignment (or reassignment) is accomplished by incorporating the NARF abbreviation into the Master Repair List,

following the Federal Stock Number of the item for items which are under ASO Inventory Control Point (ICP). The Master Repair List is maintained by ASO for its ICP items, but DOP information for GSE is directed from AIR-4146C by letter. An example of an ASO Master Repair List is shown in Figure 4-45. Most of the columns are self-explanatory. The ninth column lists the DOP abbreviation. When an item in the field requires depot servicing, it is shipped to the nearest DOP shown in the Master Repair List.

If inventory control of an item is the responsibility of an ICP other than ASO, the procedure is identical to that just described, except that the document is not called a Master Repair List, and the DOP information may be assigned a numeric code rather than an abbreviation. However, the document serves the same basic function as the Master Repair List, and contains similar information.

## 4.9 FACILITIES

### 4.9.1 General

Facilities requirements are an important GSE consideration. Without sufficient work space, available power, and proper environmental conditions, the most expensive GSE can be rendered useless. This section is included to give the GSE logistician an appreciation of the procedures used to assure that adequate facilities are available to house GSE.

Maintenance facilities can be any building, property, or space designed for, available to, or used by maintenance activities. Facilities are shops, hangars, and parking areas, used primarily for aircraft systems maintenance or rework. The term facilities does not refer to organizations, personnel, or material, except for installed aircraft-support equipment.

### 4.9.2 NAVAIR Responsibilities

NAVAIR establishes total Weapon System Facility Requirements, including GSE, and assists GSE users in establishing schedules for the development of physical facilities and the correction of facility deficiencies. Within the Logistics/Fleet Support Group, (AIR-04), the Shore Installation Division (AIR-416), is responsible for establishing facility requirements ashore and for coordinating their implementation. When requested by the Project Manager, AIR-416 assigns a facility representative to the Weapon System Team. This individual becomes the Assistant Project Manager for Facilities, APM(F), and a member of the ILSMT. The APM(F) coordinates the facility activities of the following agencies:

- Weapon System Prime Contractor
- NAVAIRSYSCOM
- NAVAIRSYSCOMREP/LANT/PAC
- Major Claimants  $\left\{ \begin{array}{l} \text{COMNAVAIRLANT} \\ \text{COMNAVAIRPAC} \end{array} \right.$
- NAVAIRREWORKFAC
- NAVFAC, Field Divisions
- ACO
- NAVSEC



LONG SUPPLY/ P. B. CODE	FEDERAL STOCK NUMBER WITH CODES (FINI SEQUENCE)	S. C. CODE	NOMENCLATURE	UNIT OF ISSUE	UNIT PRICE	CON. OVERHAUL INCHARGE CODE	DESIGNATED OVERHAUL POINT	FED. SUPPLY CODE FOR MFR	REFERENCE NUMBER
2RH	1560-003-7166-AV7X	U	WING ASSY, SPARE	EA	110000.00	*	CHY PT	89372 30003	305-829002-11 58A164H592
2RH	1540-010-A284-BE7X	U	BRACE ASSY, FUSEL	EA	390.00		ALMEDA QUONST	80058	LAU87A
2RX	4920-011-8940-AQ7X	U	FIXTURE, HOLDING	EA	200.00	C	CHY PT NOR IS	26512 91547	1234462007-13 LTCT496
2RH	1560-012-6333-ME7X	U	COVER, ACCESS, AIR	EA	500.00	*	CHY PT NOR IS	76301	32-871082-3
2RH	6615-012-8152-AP7X	U	GYROSCOPE, DISPLA	EA	8000.00	C	* COMMER	76301	32-32062-109
2RH	4920-013-7883-SX7X	U	ADAPTER ASSEMBLY	EA	300.00	*	ALMEDA NASNOR	14904	C709567016-2
2RX	4920-013-8786-QN7X	U	ADAPTER, IGNITION	EA	200.00	*	ALMEDA JAX	10001	614113J1-1
2RH	6610-015-3918-UX7X	U	MODULE, POWER SUP	EA	447.00	*	PNSCLA	10639	127-415
2RH	6655-018-2184-CJ7X	U	RECORDER, ASTROPH	EA	2880.00	C	JAX	13840	15-6327-50
3	2RH	1660-018-3825-AP7X	U	VALVE, TEMPERATUR	EA	453.00	* ALMEDA NASNOR	79294	40N980
3	2RX	4920-018-7023-GA7X	U	ADAPTER SET	EA	130.00	* ALMEDA JAX	98571	17862-7
1	2RX	4920-018-7029-GA7X	U	CABLE ASSY, SET, F	EA	2760.00	* ALMEDA JAX	80378	215-00225-1
6	2RX	4920-018-7031-GA7X	U	CABLE ASSY, ADAP	EA	724.00	* ALMEDA JAX	80378	215-01041-1
3	2RX	4920-018-7032-GA7X	U	CABLE ASSY, ADAPT	EA	690.00	* ALMEDA JAX	80378	215-01157-2
2RH	5280-018-8683-MN7X	U	GAGE KIT, BLADPS	EA	890.00	* COMMER	99207	21C31106001	
2RH	1730-019-8286-BE7X	U	LOCK AIRCRAFT GR	EA	256.00	* NOR IS	26512	1235EWF40501-1	
2RH	5826-019-8491-NZ7X	U	DRIVE CIRCUIT	EA	244.00	* ALMEDA JAX NASNOR NOR IS	06840 77068	3137185 3137185	
6	2RH	6625-020-7095-DZ7X	U	CIRCUIT CARD ASS	EA	276.00	* CHY PT NOR IS	37695	717019-801
2	2RX	4920-020-0700-GA7X	U	TARGET, ROSESIGHT	EA	775.00	* ALMEDA JAX	80378	215-00888-1
3	2RX	4920-020-0701-GA7X	U	TARGET ASSY, ROSE	EA	1300.00	* ALMEDA JAX	80378	215-00775-1
2RX	4920-020-6388-JO7X	U	STAND ENGINE ASS	EA	1620.00	* ALMEDA JAX NOR IS QUONST	81205 81205	FJ0278-26 F50278-26	
2RH	1730-020-9300-EQ7X	U	APPLICATOR, WATER	EA	180.00	* CHY PT NOR IS	24446	21C2217C001	
2RH	1650-021-4291-AP7X	U	BOOSTER ASSEMBLY	EA	7500.00	C	ALMEDA NASNOR	99207	21C2217C001
2RH	1650-021-4292-AP7X	U	BOOSTER ASSY, RUO	EA	6850.00	C	ALMEDA NASNOR	36659	918005-105
2RH	1650-021-4294-BP7X	U	BOOSTER ASSY, ATL	EA	7400.00	C	ALMEDA NASNOR	36659	938001-105
2RX	6635-022-0372-SX7X	U	MAGNETIC INSPECT	EA	325.00	* NOR IS PNSCLA	11135	TYPE3730	
1	2RH	1430-023-7302-AV7X	U	SUPPORT FEED NOR	EA	514.00	* CHY PT NOR IS	26774	D4200
2RH	1560-026-3121-FH7X	U	TANK, FUEL, AIRCRA	EA	465.00	* PNSCLA	97942	613R047G01	
2RH	5841-026-9390-FX7X	U	WAVEGUIDE 45Y	EA	207.00	* ALMEDA NASNOR PNSCLA	73842	2F1-613025-1	
2RH	5895-026-9410-FX7X	U	RECEIVER, TRANSMI	EA	606.00	* ALMEDA PNSCLA QUONST	24446 80058	7506874G1 CG12454PM78	
2RX	6625-031-1533-GH7X	U	SONAR TEST SET	EA	818.00	C	NOR IS PNSCLA	80064	RT82AAPX6
2RH	1650-034-5373-GA7X	U	VALVE, HYDRAULIC	EA	290.00	C	ALMEDA JAX	80064	OC3P9N
2RH	5120-034-5884-BO7X	U	PULLER ASSEMBLY	EA	325.00	C	CHY PT NOR IS	94661	707448
2RX	4920-034-6182-GN7X	U	BELLMOUTH, ENGINE	EA	875.00	*	PNSCLA	91547	LTCT4007
2RH	6625-034-6280-FA7X	U	PROTECTION ASSEM	EA	579.00	* ALMEDA NASNOR	77445	PWA13806	
2RH	6625-034-6352-EX7X	U	BOARD ASSEMBLY	EA	165.00	* ALMEDA CHY PT JAX NASNOR NOR IS PNSCLA QUONST	10001 00116	61A109500 45152	
3	2RX	4920-034-6398-DH7X	U	FIXTURE ASSEMBLY	EA	555.00	* NOR IS QUONST	78286	56170-66007-1
2RH	2840-034-8926-KN7X	U	HOUSING ASSY	EA	284.00	* ALMEDA QUONST	66640	6C6040	
2RH	4920-042-8184-BE7X	U	CIRCUIT CARD ASS	EA	250.00	* NASNOR NOR IS	07499	204-031-C88-1	
2RH	4920-042-8190-BE7X	U	CIRCUIT CARD ASS	EA	240.00	* NASNOR NOR IS	97499	204-031-C88-1	
3	2RH	2995-042-8417-MF7X	U	VALVE, CHECK	EA	230.00	* CHY PT JAX NOR IS QUONST	97499 80058	204-031-C88-3 ANASPM122
2RH	1615-042-9847-RH7X	U	LINK ASSY, RETENT	EA	139.00	* NOR IS	80249	106396	
2RH	1615-042-9853-RH7X	U	LINK ASSY, RETENT	EA	159.00	* NOR IS QUONST	26512	9996REF245-1	
2RH	1680-044-2970-QH7X	U	PANEL ASSY, CONTR	EA	275.00	* NOR IS	26512	9996REF262-1	
2RH	5895-044-4723-LZ7X	U	CIRCUIT CARD ASS	EA	275.00	C	* COMMER	07482	3110768G2
2RX	4920-044-6976-GA7X	U	EJECTOR, JET EMER	EA	2120.00	* ALMEDA JAX	07482	576C280P6	
2RX	6625-045-4701-TX7X	U	ANTENNA	EA	2800.00	* ALMEDA JAX	84955	6K59212-103	
2RH	5895-050-7236-DZ7X	U	SELECT ASSEMBLY	EA	510.00	* ALMEDA JAX	84955	6K59212-105	
2RH	5895-050-7280-DZ7X	U	LOG VIDEO ASSEMB	EA	859.00	* ALMEDA JAX	78286	65902-01335-041	
2RH	5895-050-7304-DZ7X	U	LOG VIDEO ASSEMB	EA	859.00	* ALMEDA JAX	90073	406-079	
2RH	5895-050-7306-DZ7X	U	OUTPUT ASSY	EA	165.00	* ALMEDA JAX	13499	759-4269-008	
2RH	5895-050-7314-DZ7X	U	PULSE CONTROL AS	EA	381.00	* ALMEDA JAX	80378	216-00194-1	
2RH	5895-050-7315-DZ7X	U	BOARD ASSY, CIRCU	EA	383.00	* ALMEDA JAX	80378	215-27272-2	
2RH	5895-050-7316-DZ7X	U	PULSE OPERATOR A	EA	322.00	* ALMEDA JAX	80378	215-27272-3	
2RH	5895-050-7317-DZ7X	U	OUTPUT ASSY	EA	405.00	* ALMEDA JAX	80378	215-27295-1	
2RH	2840-050-0731-QN7X	U	NOZZLE, TURBINE, T	EA	559.00	* OCAMA	83078	215-27263-2	
2RH	5895-050-7236-DZ7X	U	SELECT ASSEMBLY	EA	510.00	* ALMEDA JAX	80378	215-27264-1	
2RH	5895-050-7280-DZ7X	U	LOG VIDEO ASSEMB	EA	859.00	* ALMEDA JAX	80378	215-27272-2	
2RH	5895-050-7304-DZ7X	U	LOG VIDEO ASSEMB	EA	859.00	* ALMEDA JAX	80378	215-27272-3	
2RH	5895-050-7306-DZ7X	U	OUTPUT ASSY	EA	165.00	* ALMEDA JAX	80378	215-27295-1	
2RH	5895-050-7314-DZ7X	U	PULSE CONTROL AS	EA	381.00	* ALMEDA JAX	80378	215-27263-2	
2RH	5895-050-7315-DZ7X	U	BOARD ASSY, CIRCU	EA	383.00	* ALMEDA JAX	80378	215-27264-1	
2RH	5895-050-7316-DZ7X	U	PULSE OPERATOR A	EA	322.00	* ALMEDA JAX	80378	215-27262-1	
2RH	5895-050-7317-DZ7X	U	OUTPUT ASSY	EA	405.00	* ALMEDA JAX	80378	215-27263-1	

**Figure 4-45. SAMPLE OF ASO MASTER REPAIR LIST**

- NAVAIRDEVCON, Warminster
- NAEC
- NATC
- NMC

AIR-416 reviews the Weapon System Planning Data (WSPD) portion of the TDP, (which includes base-loading data, delivery schedules for aircraft and equipment, maintenance support policy, and training plans, etc.), to give initial recognition and preliminary identification of the TDP's probable impact on shore facilities. Concurrently with the review and upon request, a cost estimate for the correction of shore facility deficiencies is developed and forwarded to the project manager.

#### 4.9.2.1 RFP Preparation

AIR-410, Logistics Management Division, directs AIR-416 to provide the facility plan input to the Request for Proposal (RFP). At the same time, AIR-416 writes the facility addendum to AR-30. AR-30 then becomes part of the RFP and establishes the policy, terms, and conditions governing the implementation and execution of the integrated maintainability and support program for the weapons system. Concurrently with the AR-30 addendum preparation, AIR-416 submits to the APM(L) the shore facility requirement section of the Integrated Logistics Support Management Program (ILSMP). The facility section includes the contractual requirements for the development of (a) individual facility site surveys, or (b) a standard facility plan for typical activities ashore and afloat, one of which will be specified in the RFP and included as part of the development contract. Past cost experience and engineering judgments of AIR-416 personnel are the basis for selecting the option.

##### 4.9.2.1.1 Site Survey

If the system is to be located at only one or two geographical locations and the system has commonality with existing systems at the locations, the facilities section of the contract may require the contractor to conduct individual facility site surveys. An individual facility site survey may include, but may not necessarily be limited to:

- Maintenance space (avionics shops, hanger deck, test cells, etc.)
- Shop utilities (power, cooling, HP/LP air, lighting, water, oxygen, etc.)
- Training spaces
- Equipment storage
- RF shielded areas
- Limited access areas (security)
- Weapons handling facilities
- Aircraft servicing facilities
- Warehousing
- Administrative and maintenance support facilities
- Special support requirements

#### 4.9.2.1.2 Facilities Plan

If the weapon system is to be located at more than two or three operational activities, the RFP may require the development of a Standard Facilities Plan. The contractor's Standard Facilities Plan will identify and define the facilities support requirements at typical shore bases or CVAs and Short Airfield for Tactical Support (SATS) installations necessary to support the system throughout development, acquisition, and operation. The Facilities Planning Document usually consists of six chapters as described in the following paragraphs.

Chapter I, *Systems Characteristics and Planning Factors* — The characteristics of the system are presented as factors affecting facility planning. The presentation will be in such depth that Navy facilities planners will be thoroughly apprised of the systems that are described in the Facility Planning Document for the system. Therefore, the data presented will be adequate for planning basic facility allocations, services, construction, modification, or ship alteration. The facilities planners will not be assumed to have knowledge of the new system beyond that contained in the Facilities Requirements Plan; hence, the plan must be sufficient for base facility allocation and construction programming proposals.

Chapter II, *Test and Evaluation Stations Summary* — This chapter contains a line-item listing of facilities required for the support of the system. Each facility is identified by a facility category code, standard nomenclature, unit of measure, and recommended quantity. The format and detail of coverage is designed to permit use of the information by service facility planners in evaluating existing resources, determining facilities requirements, and initiating appropriate facilities programming actions.

Chapter III, *Operational Air Station Facilities Summary* — This chapter, where applicable, shall include sections covering operational, maintenance, training/trainer, and support facilities. The chapter will include, but will not be limited to the following types of information:

- Floor or area plans of all areas with room or area names or function and sizes specified
- Plans, sections, and elevations, with general discussions and clearances indicated
- A simple perspective sketch showing form of the facility and its site
- General statements of how the electrical and mechanical functions are to be carried out to satisfy the criteria. Use simple plans, where applicable, for clarity.

Chapter IV, *Naval Air Rework Facility Summary* — This chapter will contain line-item listings of the facilities required for support of the specific overhaul functions. Each facility item in each line-item listing will be identified by a facility category code, standard nomenclature, unit of measure, and recommended quantity. The format and detail of coverage is designed to enable service-facility planners to evaluate existing resources, determine deficiencies, and initiate appropriate facilities programming actions.

Chapter V, *Develop Requirements* — The Marine Corps Advanced Base Support and SATS concepts have been undergoing increased activity in their operational employment and development.

Consideration will be given in the facilities specification to the study of the definitive deployment facilities and their capability of supporting the weapon system operations and maintenance. As a result of such study, the contractor will establish, in the form of



AD-A054 702

ARINC RESEARCH CORP ANNAPOLIS MD  
GROUND SUPPORT EQUIPMENT LOGISTIC MANAGER'S HANDBOOK, (U)  
SEP 70 L I BAIRD, J P MCCORMICK, G P METTLER N00019-69-C-0473  
918-01-1-1067

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recommendations, the requirements for deployment facilities. These would include any functional requirement for the design of new facilities or modifications of the definitive facilities. Particular areas of interest would include:

- Analysis of the need for catapults and related trade-offs with runway matting. Determination of nose wheel tow launch compatibility parameters, if catapults are required.
- Suitability of arresting devices, including barricades.
- Compatibility with the SATS matting, especially with respect to wheel and tail hook loads during landings.
- Utilization and compatibility of van or containerized maintenance/operational support facilities.
- Other parameters.

Chapter VI, *Vessel Requirements* — This chapter will include information covering required operational maintenance and support facilities for a vessel and the effects on ship resources in accommodating an embarked Squadron/Carrier Airwing, Air Department, Aircraft Intermediate Maintenance Department, and Weapons Department. Emphasis will be given to identifying all unique interface details that may effect CVA operations, maintenance functions, and facilities. Analysis and recommendations will reflect full consideration of the mandatory need for mobility, flexibility, and safety in operations and maintenance.

#### 4.9.2.2 Proposal Evaluation

After the RFP is submitted to industry, AIR-416 answers questions from potential contractors on the facility requirements of the RFP. When the proposals are received in answer to the RFP, AIR-416 evaluates the Navy facilities section ashore and coordinates the afloat facilities with AIR-537. If a multiphased procurement is being employed, AIR-416 may revise portions of the facility requirements prior to selection of the development contractor.

Following the final selection of the weapon system contractor, AIR-410 establishes the ILSMT for the weapons system development. At the first meeting of the ILSMT, the APM(F) briefs the Navy and contractor members of the ILSMT who become the facility subcommittee. This subcommittee briefing explains the facility requirements of the WSPD and enumerates the anticipated facility impact at each location scheduled to receive the new system. During the meeting, the subcommittee discusses, revises when necessary, and approves the milestone chart and the ILSMT Implementing Plan for the facility portion of the ILSMP.

#### 4.9.2.3 Continuing Activities

During the entire course of the weapons system development, AIR-416 is continually advising activities receiving the weapon system as to their new facility requirements in terms of space, requirements, utilities, fiscal year programming, requirement dates, and all other facility matters relating to the new weapon system.



Following the dissemination of the facilities requirements, individual facility differences are usually corrected through the use of the following construction programs:

- Military Constructions (MILCON)
- Ship Improvements (SIP)
- Operating and Maintenance Modification (O&M)
- Special Projects

AIR-416 monitors and defends the programs to correct the deficiencies. AIR-416 participates in the predesign and design conferences for military construction. Facility requirements are provided to NAEC, Philadelphia, Pennsylvania, in coordination with AIR-537, for the correction of carrier facility deficiencies.

The Contractor Consulting Service participates with AIR-416 in the design-review conferences to provide the latest systems changes and to assert that the design is adequate, ashore and afloat, to support the new weapon system.

Upon completion of the facility and prior to the weapons system being introduced to the using activity, AIR-416 implements the squadron and support sites activation plan.

#### **4.9.3 Contractor Responsibility**

The ILSMP requires the contractor to provide the following services or prepare the required following documents:

- **Consultant Services.** In general, the following consulting services will be provided to the cognizant Government activities responsible for the planning, programming, and design of the supporting facilities and services:
  - **Evaluation** — utilizing the requirements data of the Facility Planning Document, the contractor will assist the Navy and Marine Corps in evaluating existing and projected site resources to support the Weapon System. This phase of consulting service will begin early enough to enable Government definition and programming of requisite construction, modification/alteration, and equipment installation projects. Coverage will include recommendations of work area size and shape, and location of equipment; specific data on shipment installation, utility requirements, and connections; recommendations for modification or alteration of existing facilities for maximum utilization; analysis and revision of criteria data to allow economical adaptation to the specific site requirements.
  - **Predesign Conference** — Contractor facility representatives will participate in predesign conferences with facility planners and agencies concerned with the design of authorized construction, modification, and alteration for installations.
  - **Technical Review of Plans and Specifications** — Contractor facility representatives will review and comment on the technical adequacy and functional suitability of plans, arrangements, and specifications prepared by design agencies for authorized facility projects.

**Problem Areas** — For problems that arise during design and construction of the required facilities, consulting services will be made available by the contractor.

- **Site Surveys or Standard Facilities Plan.** Refer to paragraphs 4.9.2.1

**Support Requirements Document.** The contractor will prepare, in coordination with cognizant Naval Air Systems Command and site activities, a Support Requirement Document (SRD) detailing the facilities and services to be provided by the Government in support of the authorized Contractor functions at each specified site.

A basic SRD will be provided to cover considerations of services/facilities/administrative details that are applicable to all tasks at the designated site. Appendices to the basic plan that define requirements/agreements for each peculiar task or activation will also be provided.

**Squadron — Support Site Activation Plan (S-SSAP).** The S-SSAP reflects the coordinated and integrated efforts of the ILS elements necessary in the activation of designated Navy/Marine Corps sites for support of the Weapon System.

The S-SSAP will define and program actions necessary for the support site demonstrations and activation/turn-over for system/equipment operations, maintenance, and training.

The tasks involved are generally:

- Preparation of a Squadron-Support Site Activation Plan to suit the functional requirements of each designated site. When approved by the Navy and/or Marine Corps, as applicable, this plan will form the basis necessary for activation of operations, maintenance, and training at the designated site.
- Monitoring of provisioning and delivery of equipments, technical publications and spares to the site to assure facilities availability.
- Monitoring of the final site facilities construction and/or modifications and equipment installations, providing consultant services as required.
- Participation with Navy representatives in periodic on-site reviews of the activation progress.
- At specified sites and as contractually directed, performance of physical installations of certain special support equipments as listed in the related approved Squadron-Support Site Activation Plan. Such installation shall include electrical/electronic and utility connection.
- Performance of on-site verification of the special support equipments/systems listed in the related Squadron-Support Site Activation Plan, as necessary to demonstrate systems compatibility in the operating environment.
- Effecting of turnover/activation of the specified support systems and facilities by execution of a Form DD-250 signifying satisfactory completion of the site activation.
- Within 90 days after site activation, provision of Final Site Activation Report which will document the support site configuration and data required for follow-on operations.

#### **4.10 CORRESPONDENCE DISTRIBUTION**

Correspondence is addressed and distributed in accordance with the Standard Navy Distribution List (SNDL). The SNDL contains approved abbreviations for Navy officers, facilities, or locations. AIR-417 has two distribution lists which include the more common addresses for GSE correspondence. Figure 4-46 is the Internal Distribution List for offices within NAVAIR, and Figure 4-47 is the external distribution for other Navy facilities.

**AIR-417 DISTRIBUTION LIST**  
(INTERNAL)

**A - ADDRESSEE**

**I - INFORMATION/COPY TO**

**15 APRIL 1970**

- |  |   |
|--|---|
| <input type="checkbox"/> 09E SAFETY<br><input type="checkbox"/> 104 CONFIGURATION MANAGEMENT<br><input type="checkbox"/> 216 CONTRACTS<br><input type="checkbox"/> 04A1 CALIBRATION, QUALITY<br><input type="checkbox"/> 401 PLANS AND APPRAISAL<br><input type="checkbox"/> 4013 SYSTEMS ANALYSIS<br><input type="checkbox"/> 410 LOGISTICS MANAGEMENT<br><input type="checkbox"/> 4106 ECP's<br><input type="checkbox"/> 411 MAINTENANCE<br><input type="checkbox"/> 4112 MAINTENANCE AVIONICS<br><input type="checkbox"/> 412 MATERIAL MANAGEMENT-REPAIR PARTS<br><input type="checkbox"/> 413 WEAPONS TRAINING<br><input type="checkbox"/> 414 MAINTENANCE MANAGEMENT<br><input type="checkbox"/> 415 TECHNICAL DOCUMENTATION<br><input type="checkbox"/> 4162 SHORE INSTALLATIONS<br><input type="checkbox"/> 417 GSE LOGISTICS<br><input type="checkbox"/> 41712 AMMRL<br><input type="checkbox"/> 4172 GSE LOGISTICS AVIONICS<br><input type="checkbox"/> 05 MATERIAL ACQUISITION<br><input type="checkbox"/> 505 ACQUISITION/QUALITY ADMINISTRATION<br><input type="checkbox"/> 510 WEAPON SYSTEMS<br><input type="checkbox"/> 520 ENGINEERING<br><input type="checkbox"/> 532 ARMAMENT ACQUISITION<br><input type="checkbox"/> 533 AVIONICS ACQUISITION<br><input type="checkbox"/> 534 GSE ACQUISITION<br><input type="checkbox"/> 535 EVALUATION<br><input type="checkbox"/> 537 SHIP INSTALLATIONS | <input type="checkbox"/> 60321 FILES<br><input type="checkbox"/> APC _____<br><input type="checkbox"/> CNM - PM _____<br><input type="checkbox"/> PMA _____<br><input type="checkbox"/> ESA-7 _____ RELIABILITY/<br><div style="text-align: right;">MAINTAINABILITY</div> |
|--|---|

*Figure 4-46. INTERNAL DISTRIBUTION LIST USED BY AIR-417*



**AIR-417 DISTRIBUTION LIST**  
(EXTERNAL)

A -- ADDRESSEE

I -- INFORMATION/COPY TO

15 APRIL 1970

<input type="checkbox"/> ASO	<input type="checkbox"/> SCW _____	<input type="checkbox"/> ACD _____	<input type="checkbox"/> WSS _____	<input type="checkbox"/> TEX _____	<input type="checkbox"/> PCP _____
<input type="checkbox"/> CGFMFLANT	<input type="checkbox"/> FMSAEG				
<input type="checkbox"/> CGFMFPAC	<input type="checkbox"/> NAD _____				
<input type="checkbox"/> CGFIRSTMAW	<input type="checkbox"/> NAESU				
<input type="checkbox"/> CGSECONDMAW	<input type="checkbox"/> NAMTRAGRU				
<input type="checkbox"/> CGTHIRDMAW	<input type="checkbox"/> NAS _____				
<input type="checkbox"/> CHNAVMAT	<input type="checkbox"/> NAVAIRDEVCCEN				
<input type="checkbox"/> CMC _____	<input type="checkbox"/> NAVAIRDEVGCEN				
<input type="checkbox"/> CNARESTRA	<input type="checkbox"/> NAVAIREWORKFAC ALAMEDA				
<input type="checkbox"/> CNATRA	<input type="checkbox"/> NAVAIREWORKFAC CHERRY PT				
<input type="checkbox"/> CNO _____	<input type="checkbox"/> NAVAIREWORKFAC JAX				
<input type="checkbox"/> COMFAIRALAMEDA	<input type="checkbox"/> NAVAIREWORKFAC NORFOLK				
<input type="checkbox"/> COMFAIRALASKA	<input type="checkbox"/> NAVAIREWORKFAC PENSACOLA				
<input type="checkbox"/> COMFAIRARGENTIA	<input type="checkbox"/> NAVAIREWORKFAC QUONSET PT				
<input type="checkbox"/> COMFAIRBERMUDA	<input type="checkbox"/> NAVAIREWORKFAC SAN DIEGO				
<input type="checkbox"/> COMFAIRHAWAII	<input type="checkbox"/> NAVAIRSYSOMREPLANT				
<input type="checkbox"/> COMFAIRKEFLAVIK	<input type="checkbox"/> NAVAIRSYSOMREPAC				
<input type="checkbox"/> COMFAIRJAX	<input type="checkbox"/> NAVAIRTESTCEN				
<input type="checkbox"/> COMFAIRKEY WEST	<input type="checkbox"/> NAVAIRTECHSERVFAC				
<input type="checkbox"/> COMFAIRMED	<input type="checkbox"/> NAVAVIONICFAC				
<input type="checkbox"/> COMFAIRMIRAMIR	<input type="checkbox"/> NAVELECSYSOM				
<input type="checkbox"/> COMFAIRNORFOLK	<input type="checkbox"/> NAVORDSYSOM				
<input type="checkbox"/> COMFAIRSAN DIEGO	<input type="checkbox"/> NAVSHIPSYSOM				
<input type="checkbox"/> COMFAIRWEST PAC	<input type="checkbox"/> NAVMISCEN				
<input type="checkbox"/> COMFAIRWHIDBEY	<input type="checkbox"/> NAVPRO _____				
<input type="checkbox"/> COMFAIRMOFFETT	<input type="checkbox"/> NAVPRO POMONA (METROLOGY)				
<input type="checkbox"/> COMFAIRPAX	<input type="checkbox"/> NAVWPNSCEN				
<input type="checkbox"/> COMFAIRQUONSET	<input type="checkbox"/> NAVWPNSCENCORL				
<input type="checkbox"/> COMFAIRLEMOORE	<input type="checkbox"/> NAVWPNEVALFAC				
<input type="checkbox"/> COMFAIRWINGSLANT	<input type="checkbox"/> NWL				
<input type="checkbox"/> COMFAIRWINGSPAC	<input type="checkbox"/> SPCC				
<input type="checkbox"/> COMNAVAILANT	<input type="checkbox"/> WPNSTA CONCORD				
<input type="checkbox"/> COMNAVAILPAC	<input type="checkbox"/> WPNSTA SEAL BEACH				
<input type="checkbox"/> COMNAVSAFECENTER	<input type="checkbox"/> WPNSTA YORKTOWN				
<input type="checkbox"/> COMOPTEVFOR	<input type="checkbox"/> CONTRACTOR _____				
<input type="checkbox"/> DCASD _____					
<input type="checkbox"/> DCASO _____					
<input type="checkbox"/> DCASR _____					
<input type="checkbox"/> DEPCOMFAIRWESTPAC					

Figure 4-47. EXTERNAL DISTRIBUTION LIST USED BY AIR-417

## **CHAPTER FIVE**

### **GLOSSARY OF TERMS**

This chapter presents a glossary of those terms commonly used within the Naval Air Systems Command and the Logistics/Fleet Support Group. The intention of this glossary is to consolidate, in a single document, terms that are relevant to the operations of the Ground Support Equipment Logistics Division.

The definitions used have been compiled from currently applicable Navy publications, instructions, and glossaries.

#### **A**

**ACQUISITION** — The process consisting of quantification, procurement, and distribution by means of which a system requirement is satisfied. Acquisition in this sense includes contract definition, development, test and evaluation, procurement, production, and installation.

**ACQUISITION LOGISTICIAN (AL)** — An individual assigned to assist the Acquisition Manager. The Acquisition Logistician is directly responsible for the coordination of all organizational components providing logistic inputs to the system, and for ensuring that documents such as the Technical Development Plan (TDP) include full provision for ILS planning.

**ACQUISITION MANAGER (AM)** — An individual charged with overall responsibility for acquisition of weapons systems, individual items of equipment, facilities, and planning for logistic support of these end items. Examples of individuals regarded as Acquisition Managers are: Project Managers, System Project Engineers, and Component Project Engineers.

**ADVANCED DEVELOPMENT OBJECTIVE (ADO)** — An ADO outlines an experimental development or major component which is not yet assured as to military usefulness, technical feasibility, and financial acceptability.

**ADVANCE PROCUREMENT PLAN (APP)** — The long-range advance procurement plan, forwarded to the Chief of Naval Material for review and approval, that sets forth procurement objectives such as completion, component breakout, acquisition of technical data for procurement, type of contract contemplated, contract award date, etc.

**AIRCRAFT MAINTENANCE MATERIAL READINESS LIST (AMMRL)** — The title of the overall program which provides the means for effective management of aircraft GSE employed at organizational and intermediate level maintenance activities.

**ALLOCATION** — An authorization by a designated official of a component of the Department of Defense making funds available within a prescribed amount to an operating agency for the purpose of making allotments.

**ALLOTMENTS (FINANCIAL)** — Aviation allotments are granted to Naval Shore Establishments and to air commands afloat to finance, generally, routine maintenance and operation costs and, where specifically authorized, special local procurement. Each aviation allotment is identified for administrative purposes according to category or series, as follows:

1. General Station Allotment — Routine maintenance and operation and general overhead of stations under Bureau of Naval Weapons management or financial control (with certain exceptions relating primarily to the operation of major overhaul and repair and research and development facilities).
2. Aircraft Operations Allotment — Cost of locally purchased supplies and services and Navy stock account material issues required for all aircraft and guided missile flight operations, and for routine upkeep and servicing of aircraft and guided missiles not in an overhaul status; does not in any case provide for pay of Naval or Marine Corps air station civilian laborer.
3. Aircraft Overhaul Allotment — Charges for civilian labor, locally purchased supplies and services, and Navy stock account material issues required in the overhaul of aircraft, engines, and aeronautical equipment, or for other related work performed in major overhaul and repair facilities and in the maintenance and preservation department of the Naval Air Facility, Litchfield Park.
4. Special Purpose Allotment — Support of special functions, offices, and procurement not covered by other allotment series.
5. Research and Development Allotment — Cost of routine, recurring, experimental, testing, and miscellaneous developmental projects, including items of technical developmental equipment (both plant account and nonplant account) associated therewith.

**APPLICATION DATA, MATERIAL READINESS LIST (ADMRL)** — Data specifying the requirement for each item of aircraft ground support equipment against intermediate and/or organizational level of maintenance and selected ranges of each aircraft/engine/system for which each item is needed. This data is "stored" in computers and used to develop Individual Material Readiness Lists.

**APPROPRIATION** — Money set aside by formal action for a specific use. Types: O&MN, PAMN, SCN, RDT&E, OPN.

**APPROPRIATION, MULTIPLE-YEAR** — An appropriation which is available for incurring obligations for a definite period in excess of one fiscal year.

**APPROPRIATION, NO-YEAR** — An appropriation which is available for incurring obligations for an indefinite period of time. Syn. "continuing" appropriation.

**APPROVAL FOR SERVICE USE** — The action taken by the Chief of Naval Operations, the Chief of Naval Material, or the Commander, Naval Air Systems Command as the cognizant Naval Professional Assistant, toward acquiring a newly developed system or equipment for operational use. To qualify as "approved for service use," a weapon system, support system, weapon, or other material must successfully undergo appropriate operational and/or



technical evaluation. The Commander, Naval Air Systems Command is authorized to approve material for service use when technical evaluation only is involved. All material for new construction, conversion, and alterations affecting the military characteristics and performance of Navy ships and aircraft requiring operational evaluation must be approved by the Chief of Naval Operations. "Approval for service use" shall constitute certification warranting expenditure of production funds on material.

**AUGMENTED SUPPORT** — An interim arrangement during initial development or production of an equipment whereby a contractor is obligated to furnish to the Government, either from production or from stocks maintained by him, items for the support of the equipment, on an as-required basis, pending assumption of support responsibility by the Government.

**AUTHORITY TO PROCEED** — The official approval of the RAM or APP by the Assistant Secretary of the Navy (I&L) and (R&D) and the Chief of Naval Material for the procurement of items in advance of approval for service use which exceed a unit cost of \$100,000 and/or a total cost of \$1,000,000.

**AUTOMATIC TEST EQUIPMENT (ATE)** — Equipment which carries out a predetermined program of testing for possible malfunction without reliance upon human intervention. Also called automatic-checkout equipment.

**AVIONICS** — The application of electronics to aviation and astronautics: includes electronic, electrical, instrument, flight control, fire control, and bombing equipment and their subsystems taken either as independent equipments, groups of equipments or integrated systems, to accomplish assigned military missions.

**AVIONIC SUPPORT EQUIPMENT** — An item required to maintain an end article of avionic equipment in, or return it to, operable condition ashore or afloat. (See support equipment).

## B

**BACKFITTING** — The addition of new type equipment to the configuration of operating aircraft or the installation of equipment in production aircraft which had been delivered without such equipment.

**BENEFICIAL SUGGESTION** — A constructive idea relating to an official operation submitted in writing by an employee or a group of employees to management for evaluation.

**BOARD OF INSPECTION AND SURVEY (BIS), PRELIMINARY EVALUATION (PE)** — A brief qualitative evaluation of the stability, control, and service readiness (including support equipment) for the purpose of establishing that the aircraft and its basic components of power plant, armament, and electronic equipment are capable of fulfilling the basic fleet mission(s) of the aircraft. (OPNAVINST P5442.2A).

**BOARD OF INSPECTION AND SURVEY PRELIMINARY EVALUATION CONFERENCE (BIS/PE CONFERENCE)** — Convenes at NAVAIR approximately 60 days subsequent to the start of the board of inspection and survey preliminary evaluation. Attended by representatives of CNO, CNATRA, Fleets, NAVAIR, ASO and contractors. Evaluation of the aircraft and its support equipment is reported and action to be taken is determined.

Proposed configuration of the aircraft for fleet delivery is established. Readiness of the aircraft and its associated equipment to commence the fleet introduction program (FIP) is a most important decision.

**BREAKOUT** — As used in this document, the process whereby parts, components, assemblies, subassemblies, sets, or groups are selected for direct procurement on a competitive basis. Example: The selection of major item from material involved in production contracts which the Government will supply to the contractor as Government Furnished Material (GFM).

**BUDGET** — A planned program for a fiscal period in terms of (a) estimated costs, obligations, and expenditures, (b) source of funds for financing, including reimbursements anticipated and other resources to be applied, and (c) explanatory and workload data on the projected programs and activities.

**BUDGETING** — The process of translating approved resource requirements (Manpower and Materiel) into time-phased financial requirements.

**BUDGET MARK-UP** — Revision of a budget in detail; at a review level, based on consideration of policies, programs, scheduling, cost factors, and other pertinent data, as a basis for approval or obligation authorization.

**BUILT-IN-TEST EQUIPMENT (BITE)** — Any device permanently mounted in the prime equipment, and used for the express purpose of testing the prime equipment, either independently or in association with external test equipment.

## C

**CHECKOUT** — A sequence of functional, operational, and calibrational tests to determine the condition and status of a weapon system or element thereof.

**CHANGE ORDER** — A written order, signed by the contracting officer, directing the contractor to make changes which the Changes Clause of a contract authorizes the contracting officer to order without the consent of the contractor. (Project 60).

**COMMITMENT** — A firm administrative reservation of funds, based upon firm procurement directions, orders, requisitions, or requests which authorize the creation of an obligation without further recourse to the official responsible for certifying the availability of funds.

**COMPONENT** — An assembly or any combination of parts, subassemblies, and assemblies mounted together, normally capable of independent operation in a variety of situations.

**CONCEPT FORMULATION** — Describes the activities preceding a decision to carry out Engineering Development. These activities include accomplishment of comprehensive system studies and experimental hardware efforts under exploratory and Advanced Development and are prerequisite to a decision to carry out Engineering Development.

**CONFIGURATION** — The physical functional characteristics of defense material systems, end items, equipment, and applicable items (including related facilities and military construction) as achieved in hardware/software and as described in recorded technical data and information.

**CONFIGURATION CONTROL** — The systematic evaluation, coordination, approval, or disapproval and implementation of (1) initial configuration, (2) of all changes to that configuration after the formal establishment of baselines and (3) of all changes to that configuration during the operational period, particularly alteration of maintenance changes.

**CONFIGURATION MANAGEMENT** — A discipline applying technical and administrative direction and surveillance to (1) properly identify, (2) control changes to, and (3) record the change implementation status of the total configuration of systems, end items, equipment, and applicable items throughout their life cycle.

**CONTRACT** — The term "contract" means a contract, letter contract, letter of intent, or purchase order in which this document may be incorporated by reference. It also includes amendments, modifications and supplemental agreements with respect to any of the foregoing.

**CONTRACTOR** — Any corporation, company, association, partnership, or individual that undertakes performance under the terms of the contract. This term shall also mean a government activity undertaking performance under a project order or allotment.

**CONTRACTOR ACQUIRED MATERIAL** — Material procured or otherwise provided by the contractor for the performance of a contract, pursuant to the terms of which title is vested in the Government.

**CONTRACTOR-FURNISHED EQUIPMENT** — Subsystem/equipment/components comprising a weapon system which are procured or otherwise furnished by the weapon system contractor.

**CONTRACTOR SUPPORT** — An interim arrangement during initial development or production of an equipment whereby a contractor is obligated to furnish to the Government, either from production or from stocks maintained by him, items for support of the equipment, on an as-required basis, pending assumption of support responsibility by the government.

**CONTRACTOR SUPPORT PROGRAM** — A period of time for which the end-article contractor is required to provide material support.— normally, the test and evaluation phases of a weapon system program.

**COORDINATION** — A general term to denote direction and control of a work effort, and the processing of actions thereto through normal chain of command lines, by an individual or organization that is specifically assigned to accomplish the function and is provided appropriate resources.

## D

**DRAWINGS** — A complete set of legible assembly and detailed manufacturing drawings (except Government Standards) including vendor drawings and engineering orders not reflected by such drawings.

**DATA REQUIREMENTS REVIEW BOARD (DRRB)** — A board appointed by a responsible manager (Program or Project Manager or other authority) to assist and advise in the determination of data requirements.



**DEPARTMENT OF DEFENSE PROGRAMMING SYSTEM** — An integrated programming system for the review and approval, on a continuing basis, of proposed Department of Defense programs, for changes to previously approved programs, and for the maintenance and updating of the FYDP (Five Year Defense Program). (OPNAV 5000.19)

**DEPARTMENT OF THE NAVY PROGRAM OBJECTIVES (PO)** — Provides the Department of the Navy the force level objectives, approved by the Secretary of the Navy, and projected eight years, commencing two years after the fiscal year in which approved and resource levels for five years (personnel, procurement, research and development, and supporting programs).

**DESIGNATED OVERHAUL POINT (DOP)** — A naval facility which has been assigned the overhaul and repair responsibility for articles/items of equipment. For listing of DOP's designated for specific aeronautical systems and sets see NAVAIRINST 4710.4 (17 Feb 1967 or its superseding instructions).

## E

**END ARTICLE** — A component or components and necessary assemblies, subassemblies and parts connected or associated together to perform an operational function. For purposes of this document, the article which is to be delivered under the basic contract is the principal end article.

**END ITEM** — A unit of support equipment which is complete within itself and performs a final desired function.

**ENGINEERING CHANGE PROPOSAL (ECP)** — A proposal submitted by the contractor to the procuring activity in accordance with contractual specification, and MIL-STD-480, or 481, as applicable. The purpose of the ECP is to furnish information relative to a proposed engineering change in order to permit a preliminary evaluation of the change. Changes meriting further formal consideration are submitted to the Change Control Board by Change Control Board Request.

## F

**FIVE YEAR DEFENSE PROGRAM** — The official OSD publication which summarizes the approved plans and programs of the Department of Defense Components.

## G

**GENERAL OPERATIONAL REQUIREMENT (GOR)** — A GOR will be prepared for each functional warfare and support area stating in relatively broad, but significant, terms the capabilities the Navy needs within the area. The GOR will state the estimated threat posed by forces, both present and projected, of our potential enemies, and will describe the operational requirements needed by Naval forces to meet this threat. Under the guidance of the GOR, research and exploratory development should be focused on our most pressing needs. Under the general requirements stated or implied, the technical bureaus are encouraged to submit development proposals to CNO in the form of Proposed Technical Approaches (PTAs) toward fulfillment of operational needs.

## H

**HUMAN ENGINEERING** — That area of human factors which applies scientific knowledge to the design of items to achieve effective man-machine integration and utilization.

**HUMAN FACTORS** — A body of scientific facts about human characteristics. The term covers all biomedical and psychosocial considerations. It includes, but is not limited to, principles and applications in the areas of human engineering, personnel selection, training, life support, job performance aids, and human performance evaluation.

## I

**ILLUSTRATED PARTS BREAKDOWN** — A manual containing illustrations and part numbers for all parts of the aircraft or equipment on which it is issued. The IPB contains information required for ordering parts, including stock numbers, and for identification of parts and arrangements of parts and assemblies.

**INDIVIDUAL MATERIAL READINESS LIST (IMRL)** — A list which specifies items and quantities of aircraft maintenance support equipment required for the material readiness of the aircraft maintenance activity for which the list applies. (For additional information, see Section 4.5.11).

**INDUSTRIAL-TYPE ACTIVITIES** — DoD activities providing products or services in categories such as depot level maintenance facilities, warehousing and supply activities (required to report semi-annually by provisions of DoD Instruction 4145.5), arsenals and ordnance plants, shipyards, including support services and/or mass clerical operations related to the above.

**INITIAL PROVISIONING** — The process of determining the range and quantity of items (i.e., spares and repair parts) required to support and maintain an end item of material for an initial period of service. Its phases include the identification of items of supply, the establishment of data for catalog, technical manual, and allowance list preparation, and the preparation of instructions to assure delivery of necessary support items with related end articles.

**INTEGRATED LOGISTIC SUPPORT** — A composite of the elements necessary to assure the effective and economical support of a system or equipment at all levels of maintenance for its programmed life cycle. It is characterized by the harmony and coherence obtained between each of its elements and levels of maintenance.

**INTERMEDIATE MAINTENANCE** — That maintenance which is the responsibility of and performed by designated maintenance activities for direct support of using organizations.

**INVENTORY CONTROL** — That functional phase of supply operations which is concerned with applying managerial supervision to integrate the actions of requirements computation, production, procurement, distribution, maintenance, and disposed of material within a supply system.

## L

**LEVEL OF MAINTENANCE** — Levels of maintenance capability defined by Department of Defense Instruction 3232.1 as organizational, intermediate, and depot.

1. **Organizational Maintenance** — That maintenance which is the responsibility of and performed by a using organization on its assigned equipment. Its phases normally consist of inspecting, servicing, lubricating, adjusting, and replacing of parts, minor assemblies, and subassemblies.
2. **Intermediate Maintenance (Field)** — That maintenance which is the responsibility of and performed by designated maintenance activities for direct support of using organizations. Its phases normally consist of calibration, repair, or replacement of damaged or unserviceable parts, components, or assemblies; the emergency manufacture of nonavailable parts; and provision of technical assistance to using organizations. The Naval Aviation Maintenance Program breaks intermediate maintenance into two classes: (1) intermediate maintenance afloat, and (2) intermediate maintenance ashore. Support equipment is coded IV for intermediate afloat, IL for intermediate ashore.
3. **Depot Maintenance** — That maintenance performed on material requiring major overhaul or a complete rebuild of parts, assemblies, subassemblies, and end items, including the manufacture of parts, modifications, testing, and reclamation as required. Depot maintenance serves to support lower categories of maintenance by providing technical assistance and performing that maintenance beyond their responsibility. It provides stocks of serviceable equipment by using more extensive facilities for repair than lower level maintenance activities.

**LOGISTIC SUPPORT** — That support required for an end article to enable the Operating Forces to operate, maintain, and repair the article within the maintenance concept defined for the article. Logistic support encompasses the selection, procurement, scheduling, stocking and distribution of spares, repair parts, support equipment, technical publications, and trainers and/or personnel training as necessary to provide the Fleet with the capability needed to keep the end article in a functional status.

## M

**MAINTENANCE ENGINEERING** — The function of providing policy guidance to maintenance activities for the purpose of exercising technical and management review for effective maintenance programs.

**MAJOR MILESTONES** — Planning dates for accomplishing major actions such as design completion, test phase, evaluation phase, verification phase, MEAR and publication revision dates, Integrated Maintenance Management Team Conference dates, etc.

**MANAGEMENT** — A general term to denote central executive direction and control of a work effort by an individual or organizational entity that is specifically assigned to accomplish the function and is provided appropriate resources. With executive direction, the manager usually has direct reporting responsibility to COMNAVAIR and has authority to short-cut normal chain-of-command lines.



**MATERIAL INSPECTION SERVICE (MIS)** — The Material Inspection Service is composed of offices within the continental limits of the United States, and where otherwise authorized by the Secretary of the Navy, engaged in procurement, inspection, and administration of contracts for material and services of every type purchased for the Department of the Navy from private contractors, including those offices which may be established hereafter for these purposes. Field Inspection Offices of the Material Inspection Service are grouped in the following two categories:

1. General Inspection Offices; i.e., Supervising Inspectors of Naval Material, Inspectors of Naval Material, and Assistant Inspectors of Naval Material.
2. Bureau Inspection Offices; i.e., Bureau of Naval Weapons Representatives, Bureau of Naval Weapons Resident Representatives, Supervisors of Shipbuilding, Assistant Supervisors of Shipbuilding, Inspectors of Machinery, and Assistant Inspectors of Machinery.

**MILITARY INTER-DEPARTMENTAL PURCHASE REQUEST (MIPR)** — A procurement order issued by one military service on another military service to procure, produce, or deliver services, supplies, or equipment to or for the ordering service. (Project 60).

**MILITARY STANDARD REQUISITIONING AND ISSUE PROCEDURE (MILSTRIP)** — A procedure for ordering and issuing material/equipment that exists within the military supply system. A procedure which can be used by one service to order material/equipment from another.

## N

**NAVAL ACTIVITY** — For purposes of this document, a Government-owned and operated facility where the end article will be operated and supported in accordance with the program data furnished by the Naval Air Systems Command.

**NAVAL AIR REWORK FACILITY (NAVAIREWORKFAC)** — Depot maintenance facility — see Level of Maintenance.

**NAVY SUPPORT PLAN (NSP)** — Provides policy and guidance for the support of approved and mobilized forces and for the phased expansion of the Department of the Navy in mobilization.

## O

**OBLIGATION** — A specific transaction requiring future payments of money — includes amounts of orders placed, contracts awarded, services received, and similar transactions requiring payment of money.

**OPERATIONAL AND SAFETY IMPROVEMENT PROGRAM (OSIP)** — An orderly, planned method of programming and budgeting the modification and modernization of in-service aircraft. Navy policy restricts modification of aircraft or weapons systems to those which improve safety or operational effectiveness of the system. Modifications requested accordingly are clarified as being part of the Operational and Safety Improvement Program. Items modified accordingly are called OSIP items.

**OPERATIONAL EVALUATION (OPEVAL)** — The test and analysis of a weapon system, support system, component, or equipment conducted by COMOPTEVFOR (Commander, Operational Test and Evaluation Force), under service operating conditions insofar as practicable, to determine the ability of a system, component, or equipment to meet specified operational performance requirements and/or to establish overall suitability for service use.

**OPERATIONAL TEST AND EVALUATION FORCE (OPTEVFOR)** — The OPTEVFOR is an operational fleet command under the administrative command of Commander-in-Chief, U.S. Atlantic Fleet. COMOPTEVFOR shall have primary responsibilities to the Chief of Naval Operations in the areas of test and evaluation in support of the Navy's RDT&E Program.

**ORDERING ACTIVITY** — Program supporting supply demand control points.

**OTHER PROCUREMENT, NAVY (OPN)** — (See Section 4.2)

**OPERATION & MAINTENANCE, NAVY (O&MN)** — (See Section 4.2)

## **P**

**PROCUREMENT AIRCRAFT & MISSILES, NAVY (PAMN)** — (See Section 4.2)

**PROCUREMENT** — The process of obtaining personnel, services, supplies, and equipment.

**PROCUREMENT REQUEST** — The document that initiates procurement action; contains basic information on which a procurement plan can be established, and is usually supplemented by the contract schedule, which consists of a description of items to be so procured, delivery dates, specification, and proposed contract terms.

**PROGRAM** — A combination of program elements designed to express the accomplishment of a definite objective or plan which is specified as to the time phasing of what is to be done and the means proposed for its accomplishment. Programs are aggregations of program elements and in turn aggregate to the total Five Year Defense Program, (DoD 7045.7).

**PROGRAM/BUDGET DECISION (P/BD)** — A secretary of Defense decision, in prescribed format, on a DoD Component's budget estimates. (DoD 7045.7).

**PROGRAM CHANGE DECISION (PCD)** — A Secretary of Defense decision, in prescribed format, on a program change request, or on any other matters affecting the Five Year Defense Program.

**PROGRAM CHANGE PROPOSALS (PCPs)** — Proposals for changes to the approved program or component thereof.

**PROGRAM CHANGE REQUEST (PCR)** — Proposals, in prescribed format, for changes to the approved data in the Five Year Defense Program.

**PROGRAM COORDINATION** — General term describing management of a specific program. This term will be used on the majority of programs within NAVAIR and will not require a management charter.

**PROGRAM COORDINATOR** — General title of person assigned to manage a program as described under program coordination. The Program Coordinator will have regular reporting authority to the Deputy Commander or an Assistant Commander.

**PROGRAM DIRECTIVE** — An official instrument by which the direction and authority for execution of planned program efforts is provided on aircraft, weapon, or equipment systems. It initiates actions on increments of a program approved for accomplishment in accordance with a weapon/equipment systems plan. It is utilized to direct the what and when of a program and to authorize the utilization of appropriate funds and resources.

**PROGRAM ELEMENT** — The basic building block of the Five Year Defense Program, is a description of the mission to be undertaken and a collection of the organizational entities identified to perform the mission assignment. Elements may consist of forces, manpower, materials, (both real and personal property), services and associated costs as applicable.

**PROGRAM MANAGEMENT** — General term describing overall management of a program which involves the coordination of all aspects of several specifically related projects/programs (i.e., aircraft engine programs) and which requires a central source of coordinated management information. A management charter will be provided for program management, which will be used on an exceptional basis.

**PROGRAM MANAGER** — General title of person assigned to manage a program as described under project management charter to that effect from, and will have special reporting authority to COMNAVAIR.

**PROGRAM OBJECTIVE MEMORANDUM (POM)** — A memorandum in prescribed format submitted to the Secretary of Defense by the Secretary of the Navy which recommends the total resource requirements within the parameters of the published Secretary of Defense physical guidance.

**PROGRAMMING** — The process of preparing a program, especially in terms of quantitative, physical requirements of manpower, materiel, and facilities.

**PROGRAMMING BUDGETING SYSTEM** — The procedures for the establishment, maintenance and revision of the Five Year Defense Program and the DoD Budget.

**PROJECT** — A planned undertaking, which usually has a finite beginning and ending, involving definition, development, production, and logistic support of a weapon, equipment, or support system. Specific work efforts involving systems in research, exploratory development, advanced development, engineering development, and operational systems development are all called projects. Combinations of systems, such as the F-4 Sparrow may be called projects. Designated Projects are specific projects selected for intensified management by SECNAV, CNM, or a Systems Commander.

**PROJECT DEFINITION PHASE** — (Phase I) is a formal step preceding full-scale development (Phase II), during which preliminary engineering and contract and management planning are accomplished in an environment that encourages realism and objectivity.

**PROJECT MANAGEMENT** — A concept for the business and technical management of selected projects based on the use of a designated, centralized management authority which is responsible for planning, directing, and controlling the definition, development, acquisition, initial logistic support of weapons systems and execution of project objectives; and for the integration and coordination of planning the scheduled accomplishment by the organizations responsible for the complementary functions of follow-on logistic and



maintenance support, preparation of personnel training plans, and preparation for operational testing, in accordance with the Project Charter or official joint agreements with other military departments or other Government agencies and the Project Master Plan. (Activation and deployment of operating elements is a responsibility of the Chief of Naval Operations.) The centralized management authority is supported by functional organizations, which are responsible for the execution of project tasks assigned.

**PROJECT MASTER PLAN (PMP)** — A formal life cycle plan which documents the integrated and interrelated tasks, time-phased and costed, required of and by all participating organizations, and which is necessary to the successful accomplishment of weapon system objectives. The plan assigns tasks to be performed, sets task completion schedules, makes activity work assignments, defines task interfaces, sets out objectives to be achieved, specifies reports to be submitted, and delineates resources available to the Project Manager.

**PROJECT ORDER** — A specific, definite, and certain order placed with a government-owned and operated establishment for the manufacture of materials, supplies, or equipment, or for other work or services to be performed by that establishment.

**PROPOSED TECHNICAL APPROACH (PTA)** — The PTA presented for CNO consideration containing methods for achieving a required capability, either in response to a TSOR or voluntarily submitted in direct support of a GOR. The purpose of a PTA is to provide technical analysis of proposed developments, assess the technical risks as well as the cost involved and recommended methods for accomplishing an objective, emphasizing trade-off options of cost versus time and cost versus performance. New system concepts generated within the bureaus or their field activities may be documented in the PTA.

**PROVISIONING** — The process of determining the range and quantity of items (i.e., spares and repair parts) required to support and maintain an end item of material for a designated period of service. Its phases include the identification of items of supply, the establishment of data for catalog, technical manual, and allowance list preparation, and the preparation of instructions to assure delivery of necessary support items with related end articles.

**PROVISIONING CONFERENCE** — A meeting to select range and quantities of supply items to support a specific program and to establish technical records.

## Q

**QUALITY** — The composite of material attributes including performance. (NAVMAT 4855.1)

**QUALITY ASSURANCE** — A planned and systematic pattern of all actions necessary to provide adequate confidence that material conforms to established technical requirements and achieves satisfactory performance in service.

## R

**RECLAMA** — A presentation by an agency, requesting restoration of all or part of a reduction in a budget estimate made by a higher review level.

**RELEASE FOR PRODUCTION** — The action taken within the Naval Air Systems Command whereby it is certified by the Assistant Commander, Material Acquisition (AIR-05), and concurred in by the Assistant Commander, Logistics/Fleet Support (AIR-04) and the cognizant Program Manager, that the design and development of a weapon system, or equipment, has advanced to the stage in which the expenditure of production appropriations is warranted, consistent with any restrictions imposed by the Release. A Release for Production does not constitute "approval for service use" and is not a procurement authorization.

**RELIABILITY** — Probability that a material will perform its intended function for a specified period of time under stated conditions.

**RELIABILITY, ACHIEVED** — A statistical estimate of reliability based on actual demonstrations under specified conditions.

**RELIABILITY ASSURANCE** — All actions necessary to provide adequate confidence that material conforms to established reliability requirements.

**RELIABILITY, INHERENT** — The theoretical maximum reliability of a design, assuming operation in an ideal, standard, or theoretical environment (for example, a standard summer day, or an ideal supply environment).

**RELIABILITY, MINIMUM ACCEPTABLE** — The reliability which must be achieved before material can be approved for service use.

**RELIABILITY, PREDICTED** — The reliability calculated at a given point in time based on inherent reliability and subsystem or component achieved reliability.

**REPAIR PART** — An integral manufactured and replaceable part of a spare or an equipment made available for replacing normal wear and tear or damage incurred in service (see Spares). Repair parts and spare parts are synonymous; however, "repair parts" is the preferred term.

**REPROGRAMMING ACTIONS** — Changes in planned application of financial resources from the purposes originally contemplated and budgeted for, testified to, and described in the budget justifications submitted to the Congressional Committees, other than changes made to comply with the intent of the Congress in its action on legislation for appropriations for the Defense establishments.

## S

**SHIPBUILDING AND CONVERSION, NAVY (SCN)** (See Section 4.2).

**SHOPPING LIST** — The complete list of material contained within and supporting the budget estimates as submitted by the President to the Congress annually in January for the ensuing fiscal year.

**SOURCE CODES** — Codes assigned to support items (spares, repair parts, part kits, special tools, test equipment, and support equipment) during the provisioning process to indicate to maintenance and supply personnel the manner of acquiring items for the maintenance, repair, or overhaul of end items.

**SPECIFIC OPERATIONAL REQUIREMENT (SOR)** — A document by which the CNO states the need for the development of a particular operational capability. It normally follows and is based on the information in a PTA.

**SUBASSEMBLY** — Two or more parts which form a portion of an assembly or a component replaceable as a whole, but having a part or parts which are individually replaceable.

**SYSTEM** — An orderly combination of men and machines designed to perform a defined function under stated conditions. This includes the facilities, equipment, material, personnel, technical data, and logistics support needed to accomplish the function in the stated operational and/or support environment.

**SYSTEM/PROJECT** — Equipment and/or skills together with any related facilities, services, information, and techniques that form a complex or an entity capable of performing specific operational tasks in support of an identifiable Defense objective.

## T

**TECHNICAL DATA** — Encompasses all types of specifications, standards, engineering drawings, instructions, reports, manuals, tabular data, and tests results used in the development, production, testing, use, maintenance, and disposal of military items, equipments, and systems.

**TECHNICAL DEVELOPMENT PLAN (TDP)** — The TDP comprises the plan for the fulfillment of an ADO or SOR. The TDP is a detailed description of the effort necessary to accomplish the development together with a recommended funding schedule. Approval by the CNO constitutes the authority to commence a development project commensurate with funds that are provided by separate action. When funded, the TDP becomes the primary management control and reporting document for the life of the development project. In the case of major developments (in excess of \$25M) a program-definition phase must be instituted to conform to certain additional control and approval procedures stipulated by the Office of the Secretary of Defense. (OPNAV 3900.8)

**TECHNICAL EVALUATION (TECHEVAL)** — The test and analysis required of NAVAIRSYSCOM to determine whether a particular weapon system, support system, component, equipment, or other item of material meets design specifications and is technically suitable for operational evaluation or service use.

**TENTATIVE SPECIFIC OPERATIONAL REQUIREMENT (TSOR)** — A requirement document prepared by the CNO and addressed to the CNM or the cognizant bureau outside of the Naval Material Support Establishment (NMSE). Generally, the TSOR is the initial step in the formal exchange of documents between the user and producer in the RDT&E planning cycle. The TSOR is, therefore, the first step toward arriving at a definition of the system, its characteristics, its deployment and its procurement, operation, and maintenance costs.

**TOTAL OBLIGATIONS AUTHORITY (TOA)** — The total financial requirements of the Five Year Defense Program or any component thereof required to support the approved program of a given fiscal year.



## V

**VALIDATION** — The action taken by the cognizant Military Engineering Activity to confirm the fact that the specifications, drawings, or associated applicable procurement technical documentation reflect the accurate and current minimum operational needs of the Military Departments. Also, the action of a contractor to confirm the accuracy and completeness of a change package prior to distribution of a preliminary technical directive and prior to verification procedures.

**VALUE ENGINEERING** — An organized effort of intensive appraisal of all the elements of design, manufacture or construction, procurement, inspection, installation, operation and maintenance of an item and its components, including the applicable specifications and operational requirements, in order to achieve the necessary performance, maintainability, and reliability at minimum cost.

**VENDOR ITEM** — The term "Vendor Item" or "Vendor Parts" means all items which are used in or attached to the article produced by the contractor under this contract and which are procured by the contractor in the open market or from established sources and for which the contractor does not have proprietary rights.

**VERIFICATION** — The process of substantiating the accuracy and completeness of technical directions for operation or maintenance by actually performing the operation or maintenance in accordance with those directions. Normally applied to procedures contained in technical manuals and technical directives.

## W

**WEAPON/EQUIPMENT SYSTEM** — A complex of equipment, together with all related airborne, seaborne, and ground-based equipments, capable of performing or supporting facilities and services required to enable the system to operate as a self-sufficient unit in the intended operational or support environment.

**WEAPON SYSTEM PLANNING DATA (WSPD)** — Provides base loading data, planned procurements, delivery schedules, system inventories, planning factors, material support policy, training plans, and other related planning information.

**WORK REQUEST** — A cost-type contract placed with a field activity for work or services, other than procurement, that is not specific enough to qualify for a project order.

## CHAPTER SIX

### INDEX OF PERTINENT NAVAL DIRECTIVES

This chapter provides an index of Naval directives (instructions, notes, specifications, and standards), outlining procedures, policies and requirements, information is relevant to the operations of the Ground Support Equipment Division. This index is divided into two listings.

The alphanumeric index lists the directives by publication number according to the following categories:

- Aeronautical Requirements
- ASO Field Instructions
- BUSANDA Instructions
- BUWEPSINST
- BWFRPACINST
- CNARESTRINST
- GSE Correspondence
- Military Standards
- NAVAIRINST
- NAVMATINST
- NAVAIRNOTE
- NAVSUPINST
- OPNAVINST
- SECNAVINST
- Weapons Requirements

Instruction Number	Code of Originating Office	Date	Subject
<b>AERONAUTICAL REQUIREMENTS</b>			
AR-6A	AIR-53355	1 Jun 70	Technical data requirements for MK 58 Mod 0 rocket motor
AR-10		1 May 67	General requirements for maintainability of avionics equipment and systems
AR-22		23 May 69	Format and content of formal technical directives
AR-25		12 Mar 68	Training requirements for contractor-supported training on Naval aircraft weapon systems or components
AIR-30	AIR-4014	10 Oct 69	Integrated Logistic Support Program Requirements for aeronautical systems and equipment
AR-32	AIR-413	23 May 69	Prescribes procedure, terms, and conditions governing the selection and furnishing of training parts, technical data, and services
AR-41			Technical Directive development and requisition of integrated logistic support for aeronautical weapon system changes
AR-60	AIR-4013	1 Jun 70	Level of repair analysis
<b>ASO FIELD INSTRUCTIONS</b>			
FASO 4440.75C	SPP	15 Jul 68	GSE (material control code "X") policy, responsibilities, and procedures concerning
<b>BUSANDA INSTRUCTIONS</b>			
BUSANDA 4442.6	E3	9 Jul 64	Base supply levels of repairable type items
BUSANDA 4614.2	OE	9 Apr 65	Assignment of priorities for the requisitioning and movement of high-value items and for the induction of unserviceable repairables, including high-value items, at Navy repair facilities; policy for
<b>BUWEPSINST</b>			
BUWEPS 4408.3B CH. 1	AIR-4146	28 Oct 64	Aeronautical components, equipment, and training devices in need of depot rework and/or test; policy, responsibilities, and procedures for processing of
BUWEPS 4423.3A CH. 1	FSSC-311 (AIR-41251)	2 Jul 62	Aeronautical material outfitting and readiness instructions for ships of the Navy



Instruction Number	Code of Originating Office	Date	Subject
BUWEPSINST (continued)			
BUWEPSINST 4423.10	AIR-41251	10 Dec 65	Military Essentiality Coding Program for Bureau of Naval Weapons equipments
BUWEPS 4470.2	AIR-41251	22 Jun 67	Furnishing of aircraft maintenance support equipment to Naval Air Training Activities to support aircraft transferred from active Marine and Navy squadrons; policy concerning
BUWEPS 4710.1C CH. 1	AIR-04	13 Oct 64	The Progressive Aircraft Rework (PAR) Program
BUWEPSINST 7303.6	AIR-4115	19 Jun 62	Fiscal procedures for the maintenance and repair of aircraft maintenance support equipment; policy concerning
BUWEPS 11000.1B	AIR-41242	15 Mar 66	Policies and procedures for support of shore activities and reporting requirements for specialized mobile GSE general station collateral equipment, specialized cryogenic equipment, and AVR and activity craft.
BUWEPSINST 13052.1A	FW-12	8 Apr 64	Aircraft and their related equipment and material; procedures for preparation, distribution, incorporation, and disposition of changes to
BWFRRPACINST			
BWFRRPACINST 4710.11	FRR-21212/HBH: 6C	10 Aug 66	Depot level repair of in-use aviation support equipment
CNARESTRINST			
CNARESTRINST 3500.37A	Code 42	19 Oct 66	ASE training and licensing program
GSE CORRESPONDENCE*			
AIR-415:JRS:rs	AIR-415	15 Nov 68	Documentation improvement program task force; information on
AIR-415: JRS/14	AIR-415	10 Mar 69	Technical documentation orientation, and familiarization visit; information concerning and schedule of
AIR-434A/HOA	AIR-534A	11 Apr 68	Revised terminology and definition of aircraft maintenance support equipment, general support equipment, special support equipment, standard support equipment, and other similar items.
AIR-534A:	AIR-534A	9 Jan 69	Aeronautical technical manual requirements codes and NAVAIRINST 5600.7; request for clarification and changes to
*GSE correspondence is memo unless a letter is indicated.			

Instruction Number	Code of Originating Office	Date	Subject
GSE CORRESPONDENCE (continued)			
AIR-534A/3 HOA	AIR-534A	9 Jan 69	Complete, accurate, and timely availability of technical manuals for items of ground support equipment
AIR-534A/14: HOA	AIR-534A	18 Feb 69	ASO weapon system support contact and co-ordinator for GSE
AIR-534A/76: HOA (Letter)	AIR-534A	25 Feb 69	Realignment of NAVAIR tasks in the GSE area involving the NATSF and the NAEC.
AIR-4011:BLP	AIR-4011	17 Feb 69	Planning Notes
AIR-4033C1: BRN	AIR-4033	7 Jan 69	Conference summary on guidance for logistic support requirements for TA-75 Tractor
AIR-4106: JVB	AIR-4106	3 Feb 70	AIR-04 procedures for processing and implementing aircraft ECPs and CCB actions
AIR-4112A/26:RVW	AIR-4112	23 Oct 69	Procedures and format for preparation of ILS for avionics equipment
AIR-4115	AIR-4115		Ground Support Equipment
AIR-5341:HEB	AIR-534	3 Dec 68	WSPDs; request for change in format of
AIR-5343/17: tal (Letter)	AIR-5343	29 Sept 67	GSE operating procedures; conference concerning
AIR-41123D/10 RES	AIR-41123	28 Feb 69	AN/AQH ( )V Recorder Reproducer
AIR-411241/1 RES	AIR-411241	23 Jan 68	CV-2461/a tentative maintenance philosophy; forwarding of
AIR-411241/3: RES	AIR-411241	29 Jan 68	Tentative ILS plan for AN/APS-115
AIR-41242B: SEH	AIR-41242		Maintenance policy; GSE
MILITARY STANDARDS			
MIL-STD-480		30 Oct 68	Configuration control — engineering changes, deviations and waivers
MIL-STD-481		30 Oct 68	Configuration control — engineering changes, deviations and waivers (short form)
NAVAIRINST			
NAVAIRINST 1500.2	AIR-4133	20 Mar 68	Training of military personnel within Naval Air Rework Facilities; policy and procedure for

Instruction Number	Code of Originating Office	Date	Subject
NAVAIRINST (continued)			
NAVAIRINST 3900.8	AIR-302	11 Jul 69	Policy, responsibilities and procedures for assignment of technical workload to field activities
NAVAIRINST 3910.1B	AIR-1013	11 Apr 69	Naval Material Command RDT&E projects; procedures for
NAVAIRINST 3910.2	AIR-1014	17 Jul 67	NAVAIR long-range air systems plan
NAVAIRINST 3910.4A, CH. 1	AIR-1013	5 Jan 69	PTAs; procedures for preparation and submission of
NAVAIRINST 4000.4A, CH. 1	AIR-1012	8 Feb 69	Approval for service, use and authority to procure in advance of approval for service use; policies and procedures for
NAVAIRINST 4000.9	AIR-5204	7 Feb 69	Management of technical data
NAVAIRINST 4121.3	AIR-52021C	10 Jun 68	Specifications under the cognizance of NAVAIR-SYSCOM (XAS, AS and MIL- (AS)); policies, responsibilities, and procedures for preparation, revision, and processing of
NAVAIRINST 4200.15, CH. 1	AIR-5204	23 Feb 61	Technical Data procurement policy and procedures for
NAVAIRINST 4205.7	AIR-2041B	8 Aug 68	Provisioned and other unpriced items under NAVAIR NAVAIR supply, or maintenance and overhaul contracts, ordering, negotiating and executing, supplemental agreements for
NAVAIRINST 4340.2	AIR-5053	24 Jul 68	GFE Lists (Aircraft/Missiles); preparation and utilization of
NAVAIRINST 4350.2 CH. 1	AIR-41413	20 Mar 68	ETS (Engineering and Technical Services): policy and procedures for
NAVAIRINST 4350.3	AIR-41413	9 Mar 68	Contractor personnel services within Naval Air Systems Command; information concerning
NAVAIRINST 4355.4	AIR-40A2	26 Aug 67	Naval Air Systems Command Calibration Program
NAVAIRINST 4410.1	AIR-41211	3 Sept 68	Obtaining Federal Stock Numbers for material procured by the NAVAIRSYSCOM; procedures for
NAVAIRINST 4420.1A	AIR-41251	20 Sept 68	NAVAIR AMMRL Program; management and operation of
NAVAIRINST 4420.3	AIR-2041B	16 Dec 67	Procurement of NAVAIR technical material and services



Instruction Number	Code of Originating Office	Date	Subject
NAVAIRINST 4420.4	AIR-41211	4 Jun 68	Stock coordination; Naval Air Systems Command policies and procedures for
NAVAIRINST 4423.2	AIR-5343	9 Aug 68	Spare end items of support equipment
NAVAIRINST 4490.2	AIR-413	7 Apr 70	Procedure to ensure availability of training material
NAVAIRINST 4700.4	AIR-4142	2 Aug 67	Uniform criteria for <i>repair cost estimates</i> used in determination of economical repair.
NAVAIRINST 4700.6	AIR-4033	8 Mar 69	ILS of GSE on GSE contracts; procedures for
NAVAIRINST 4710.5	AIR-4142	3 May 67	Funding and work loading of PAR and PAR/REPAIR aircraft
NAVAIRINST 4730.4	AIR-41413	9 Aug 68	NETS technical and administrative reports; policy for
NAVAIRINST 4750.1	AIR-41022A	13 Feb 68	Model TC-4C aircraft; maintenance supply support, configuration control and related instructions concerning.
NAVAIRINST 4801.1	AIR-505A	28 Sept 67	Policy governing production of NAVAIRSYSCOM material
NAVAIRINST 4830.1A	AIR-50534	30 Oct 68	Defense materials system; defense order ratings, priorities, and expediting (FOUO)
NAVAIRINST 4858.3	AIR-01A5	1 Aug 68	VE program; management of
NAVAIRINST 5200.15	AIR-1012	9 Nov 67	Milestone check list; establishment and use of
NAVAIRINST 5200.3A	AIR-1013	6 Feb 68	Planning directives, preparation and implementation of
NAVAIRINST 5215.6A	AIR-4116	27 Nov 69	Local engineering directives prepared by Naval Air Rework Facilities.
NAVAIRINST 5400.44	AIR-4146	26 Nov 68	Procedures concerning engineering support services provided to the Aviation Supply Office by Naval Air rework facilities
NAVAIRINST 5430.2	AIR-413	5 Jul 68	Weapon systems training policies and procedures
NAVAIRINST 5451.67	AIR-04C1C	20 Feb 69	Policy on Exercise of Command and Support Responsibilities for Shore (Field) Activities of NAVAIR.

Instruction Number	Code of Originating Office	Date	Subject
NAVAIRINST (continued)			
NAVAIRINST 5451.30	AIR-41413	26 Nov 66	Assignment of projects, tasks, or funds to the Naval Aviation Engineering Service Unit, Philadelphia, Pennsylvania; policies and procedures for
NAVAIRINST 5451.40	AIR-4036	24 Feb 67	Assignment of tasks or resources to the NAVAIR-TECHSERVFAC.
NAVAIRINST 5451.59	AIR-04C1C	13 Dec 67	NAVAIR Representative, Atlantic; mission and tasks of
NAVAIRINST 5451.60	AIR-04C1C	19 Sept 68	NAVAIR Representative, Pacific; mission and tasks of
NAVAIRINST	AIR-415C	2 Apr 68	Technical Manual Management program; manual preparation surveillance through in-process review, validation, and verification; instructions concerning.
NAVAIRINST 5600.10	AIR-415C	19 Apr 68	Technical manuals; use of organizational and intermediate maintenance manuals by NAVAIR WORKFACs.
NAVAIRINST 5600.12	AIR-41413	15 Jul 68	Digest of Naval Aviation Weapons Systems; description of, responsibility for, distribution policy for, and method of contributing to
NAVAIRINST 11140.1	AIR-41242	23 Oct 68	Reporting requirements for expeditionary Equipment (Section M) for support of Fleet Marine Force
NAVAIRINST 11140.2	AIR-41242	30 Oct 68	Fleet Marine Force reporting requirements for expeditionary Equipment (Section M)
NAVAIRINST 11240.3	AIR-41242	8 Jul 68	Automotive construction and mobile ordnance equipment for deployable Fleet Marine Force aviation units; instructions concerning
NAVAIRINST 12330.3	SA-5312	8 Jan 69	Logistics Development Program; operation of
NAVAIRINST 13010.1A, CH. 1	AIR-101	25 Nov 68	WSPD policy, responsibility and procedures for preparation of (FOUO)
NAVAIRINST 13800.4	AIR-5341	2 Jul 68	GSE for weapon systems under augmented support; procedures and responsibilities therefore

Instruction Number	Code of Originating Office	Date	Subject
NAVMATINST			
NAVMATINST 4400.11	CNM	12 Dec 67	Management of aeronautical material
NAVMATINST 4423.4	MAT-0421:kdr	18 May 67	Shipboard allowance lists; policies and responsibilities for
NAVMAT 4440.37A	MAT-232:Gail	19 Jan 66	Stock coordination responsibilities for Navy inventories; policy concerning
NAVAIRNOTE			
NAVAIRNOTE 5215	AIR-6031D	1 Dec 69	NAVAIR, BUWEPS, BUAER and NAVORD instructions in effect on 30 November 1969; review of
NAVAIRNOTE 5420	AIR-04AX	27 Jan 69	NAILS Center task force; phase-out plan
NAVSUPINST			
NAVSUPINST 4423.14	SUP-0431	9 Aug 66	NMC Uniform Source, Maintenance, and Recoverability (SM&R) Codes.
OPNAVINST			
OPNAVINST 11010.1D	OP-441 Ser 1188P44	30 Jul 62	Shore installations and Facilities Planning and Programming System.
OPNAVINST 1500.11D, CH. 1	OP-562 Ser 1405P56	18 Jan 68	Personnel and training support requirements, information, and training programs
OPNAVINST 1540.29	OP-03T2D Ser 77P03T	25 May 64	Training plan to support the introduction of Naval Air maintenance training program
OPNAVINST 4441.12	OP-412C Ser 2632P41	27 Aug 64	Supply support of the operating forces
OPNAVINST 4490.2A	OP-14C	27 Apr 68	Availability of equipment for training
OPNAV 5400.5C	OP-502	24 Feb 62	Naval aircraft maintenance program
SECNAVINST			
SECNAV 4100.6	SO-4	7 Nov 55	Department of Defense maintenance engineering program.
SECNAV 4200.20	OMN M442/ANB M304/WWL/OGC/ PCV:cd	13 Mar 63	Replenishment parts; use of data and technical support required in procurement of
SECNAVINST 4423.3A	SUP 062	21 Jun 66	Policies for assignment and use of source, maintenance, and recoverability codes.



Instruction Number	Code of Originating Office	Date	Subject
SECNAVINST (continued)			
SECNAV 4440.28	ONM/M37D PFW:jr	25 Apr 63	Inventory management system. Uniform Inventory Management System; development of
SECNAV 4440.3A, CH. 1-5	50-4	24 Oct 56	Inventory Management Policies
WEAPONS REQUIREMENTS			
WR-2  WR-30 (changed to AR-30 Oct. 1969)			Contractor support for NAVAIR contracts  Integrated Maintenance Management for <ul style="list-style-type: none"> <li>· Aeronautical weapons</li> <li>· Weapon systems</li> <li>· Related equipment</li> </ul>

Subject	Originating Authority	Number	Date
<i>Administrative and Technical Reports NETS</i> Policy for See NETS Technical . . .	NAVAIR	4730.4	9 Aug 68
<i>Aeronautical Requirements Training Parts Provisioning Document for NAVAIR Contracts.</i> Prescribes procedure, terms, and conditions governing the selection and furnishing of training parts, technical data, and services	NAVAIR	AR-32	12 Jun 68
<i>Aeronautical Technical Manual Requirements Codes and NAVAIRINST 5600.7 Request for Clarification and Changes to</i>	AIR-534A	HOA/1	9 Jan 69
<i>AIR-04 Procedures for Staffing Proposed Engineering Changes</i> To establish uniform procedures for processing ECPs and CCB summary mats within the AIR-04 Logistics/Fleet Support Group	AIR-4106	JVB	3 Feb 70
<i>Aircraft Maintenance</i> Revised Terminology and Definition of See Revised Terminology . . .	AIR-534A	HOA	11 Apr 68
<i>Aircraft Maintenance Program, Naval</i> See Naval Aircraft . . .	OPNAV	4790.2	21 July 70
<i>Aircraft Support Equipment, Repair of</i> See Repair of . . .	BUWEPS	7303.6	19 Jun 62
<i>Allowance Lists, Shipboard</i> Policies and Responsibilities for See Shipboard Allowance . . .	NAVMAT	4423.4	18 May 67
<i>AMMRL</i> NAVAIR AMMRL Program, Management and Operation of Background, significant definitions, objectives, scope, overall concepts, responsibilities, standard procedures and data flow for the effective management and operation of the AMMRL Program	NAVAIR	4420.1A	20 Sept 68
<i>AN/APS-115 Tentative ILS Plan</i>	AIR-411241/3	RES	29 Jan 68
<i>AN/AQH( )V Recorder Reproducer</i>	AIR-41123D/10	RES	23 Jan 68

Subject	Originating Authority	Number	Date
<i>Approval for Service Use and Authority to Procure in Advance of Approval for Service Use; Policies and Procedures for</i>	NAVAIR	4000.4A	8 Feb 69
<i>ASE Training and Licensing Program</i> To implement OPNAVINST 3500.26A and outline the action required to train and license personnel in the operation and maintenance of ASE	CNARESTRA	3500.37A	19 Oct 67
<i>ASO Weapon System Support Contact and Coordinator for GSE</i>	AIR-534A	14:HOA	18 Feb 69
<i>Assignment of Projects, Tasks or Funds to the NAESU, Phila., Pa., Policies and Procedures for</i>	NAVAIR	5451.30	26 Nov 66
<i>Assignment of Tasks or Resources to the NAVAIRTECHSERVFAC</i> Establishes lines of communication to be followed for actions which affect the workload or funding posture of the NAVAIRTECHSERVFAC.	NAVAIR	5451.40	24 Feb 67
<i>Atlantic, NAVAIR Representative</i> See NAVAIR Representative . . .	NAVAIR	5451.59	13 Dec 67
<i>Aviation Support Equipment, Depot Level Repair of</i> See Depot Level Repair . . .	BWFRRPAC	4710.11	10 Aug 66
<i>Avionics Equipment, ILS for</i> Procedures and Format for See Procedures and Format	AIR-4112A/26	RVW	23 Oct. 69
<i>Base Supply Levels</i> Of Repairable type items See Supply . . .	BUSANDA	4442.6	9 Jul 64
<i>Bureau of Naval Weapons Equipments</i> Military Essentiality Coding See Military Essentiality . . .	BUWEPS	4423.10	10 Dec 65



Subject	Originating Authority	Number	Date
<i>Checklist, Milestone</i> Establishment and use of See <i>Milestone Checklist . . .</i>	NAVAIR	5200.15	9 Nov 67
<i>Civilian and Military Training Requirements</i> For contractor See <i>Military and Civilian Training . . .</i>	NAVAIR	AR-25	12 Mar 68
<i>Coding Program, Military Essentiality</i> For Bureau of Naval Weapons Equipments See <i>Military Essentiality . . .</i>	BUWEPS	4423.10	10 Dec 65
<i>Complete, Accurate and Timely Availability of</i> <i>Technical Manuals for items of Ground Support</i> <i>Equipment</i>	AIR-534A /	3:HOA	9 Jan 69
<i>Conference Summary on Guidance for Logistic</i> <i>Support Requirements for TA-75 Tractor</i> Memo	AIR-403301	BRN	7 Jan 69
<i>Configuration Control — Engineering Changes,</i> <i>Deviations, and Waivers</i>	MIL-STD	480	30 Oct 68
<i>Configuration Control — Engineering Changes,</i> <i>Deviations and Waivers (Short Form)</i>	MIL-STD	481	30 Oct 68
<i>Configuration Control, TC-4C</i> See <i>Model TC-4C</i>	NAVAIR	4750.1	13 Feb 68
<i>Contractor Personnel Services Within Naval Air</i> <i>Systems Command</i> Directs attention to established DoD policies and procedures on the procurement of con- tractor personnel services utilizing Naval Air Systems Command funds.	NAVAIR	4350.3	9 Mar 68
<i>Contractor, Training Requirements for Military and</i> <i>Civilian</i> See <i>Military and Civilian Training . . .</i>	NAVAIR	AR-25	12 Mar 68
<i>Cost Estimates, Repair</i> See <i>Repair Cost Estimates</i>	NAVAIR	4700.4	2 Aug 67
<i>CV-2461/A Tentative Maintenance Philosophy;</i> <i>Forwarding of</i>	AIR-411241/1		

Subject	Originating Authority	Number	Date
<i>Data, Technical, Management of</i> <i>See Management of . . .</i>	NAVAIR	4000.9	7 Feb 69
<i>Data, Technical, Procurement Policy</i> <i>See Technical Data . . .</i>	NAVAIR	4200.15	23 Feb 61
<i>Data, Technical, Requirements for</i> <i>MK-58 Mod O Rocket Motor</i>	NAVAIR	AR-6A	1 Jun 70
<i>Defense Materials System; Defense Order Ratings,</i> <i>Priorities, and Expediting (FOUO)</i> Establishes procedures and assigns responsibilities for managing the Defense Materials System and related programs in the NAVAIRSYSCOM	NAVAIR	4830.1A	30 Oct 68
<i>Depot Level Repair of In-Use Aviation Support</i> <i>Equipment</i> Implements the overall rework policy for in-use MARC E Aviation Support Equipment as set forth in OPNAV INST 5400.5C	BWFRPAC	4710.11	10 Aug 66
<i>Development Program, Logistics, Operation of</i> <i>See Logistics Development . . .</i>	NAVAIR	12330.3	8 Jan 69
<i>Deviations</i> <i>See Configuration Control . . .</i>	MIL-STD	480	30 Oct 68
	MIL-STD	480	30 Oct 68
<i>Digest of U.S. Naval Aviation Weapons Systems</i> Describes the Digest and its preparation; estab- lishes policy for its distribution, invites contri- butions from appropriate activities	NAVAIR	5600.12	15 Jul 68
<i>Documentation Improvement Program Task Force;</i> <i>Information on</i>	AIR-415;	JRS:rs	15 Nov 68
<i>Documentation, Technical</i> <i>See Technical Documentation . . .</i>	AIR-415	JRS/14	10 Mar 69
<i>Engineering and Technical Services (ETS); Policy</i> <i>and Procedures for</i> Establishes policies, responsibilities, and procedures for planning, procurement, utilization, and admin- istration of Naval Air Systems Commands engi- neering and technical services; designates a cen- tralized review point within Air Systems Command for administration over all ETS.	NAVAIR	4350.2	20 Mar 68

Subject	Originating Authority	Number	Date
<p><i>Engineering Changes, AIR-04 Procedures for Staffing Proposed Engineering Changes</i></p> <p>Establishes uniform procedures for processing ECPs and CCB summary mats within the AIR-04 Logistics/Fleet Support Group</p>	AIR-4106	JVB	3 Feb 70
<p><i>Engineering Changes</i></p> <p>See <i>Configuration Control</i> . . .</p>	MIL-STD	480	30 Oct 68
	MIL-STD	481	30 Oct 68
<p><i>Engineering Program, Maintenance DoD Maintenance Engineering Program</i></p> <p>See <i>Maintenance Engineering</i> . . .</p>	SECNAV	4100.6	7 Nov 55
<p><i>Engineering Support Services Procedures Concerning</i></p> <p>See <i>Procedures Concerning</i> . . .</p>	NAVAIR	5400.44	26 Nov 68
<p><i>Equipment Training Activities, Maintenance Support</i></p> <p>See <i>Maintenance Support</i> . . .</p>	BUWEPS	4470.2	22 Jun 67
<p><i>Essentiality Coding Program, Military, for Bureau of Naval Weapons Equipments</i></p> <p>See <i>Military Essentiality</i> . . .</p>	BUWEPS	4423.10	10 Dec 65
<p><i>ETS (Engineering and Technical Services); Policies and Procedures for</i></p> <p>Distributes Change 1 to NAVAIR Instruction 4350.2</p>	NAVAIR	4350.2	20 Mar 68
<p><i>Facilities, Shore Installations, and Facilities Planning and Programming</i></p> <p>To describe the basic system for planning Naval Shore Installations and Facilities and the relationship of such planning to Shore Activity mission and workload planning in order to effect system improvements.</p>	OPNAV	11010.1E	30 Jul 62
<p><i>Federal Stock Numbers, Obtaining Federal Stock Numbers for material procured by the NAVAIR, procedures for</i></p> <p>To issue procedures for FSNs for assignment to material procured by NAVAIR and not stock-numbered through provisioning processes.</p>	NAVAIR	4410.1	3 Sept 68



Subject	Originating Authority	Number	Date
<p><i>Field Activities, Policy Governing the Exercise of Command and Primary Support Responsibilities Over Assigned Field Activities</i></p> <p>Self-explanatory, reference NAVMATINST 5450.3A</p>	NAVAIR	5451.67	20 Feb 70
<p><i>Funding and Workloading of PAR and PAR/Repair Aircraft</i></p> <p>Provides policy and guidelines for administering the funding and workloading of the PAR Program at NAVAIREWORK FACS</p>	NAVAIR	4710.5	3 May 67
<p><i>GFE Lists (Aircraft/Missiles); Preparation and Utilization of</i></p> <p>Sets forth policy and procedures consistent with NAVAIRINST 13010.1 for (1) preparation and use of GFELs for production aircraft and air-launched missiles, (2) determination of total GFE installation requirements, and (3) preparation of aircraft and air-launched missile GFE procurement plans for the fiscal year which begins 18 months after January of each calendar year.</p>	NAVAIR	4340.2	24 Jul 68
<p><i>Ground Support Equipment Contracts ILS of GSE on</i></p> <p>See ILS. . .</p>	NAVAIR	4700.6	8 Mar 69
<p><i>GSE Area, NAVAIR Tasks, Realignment of</i></p> <p>See Realignment . . .</p>	AIR-534A/76:HOA (Letter)		25 Feb 69
<p><i>GSE on Ground Support Equipment Contracts ILS of</i></p> <p>See ILS . . .</p>			
<p><i>GSE Operating Procedures; Conference Concerning</i></p>	AIR-5343/17:tal		29 Sept 67
<p><i>GSE (MCC "X") Policy, Responsibilities and Procedures Concerning</i></p>	FASO	4440.75	15 Jul 68
<p><i>GSE for Weapon Systems Under Augmented Support; Procedures and Responsibilities Therefore</i></p> <p>In the general and standard support equipment area</p>	NAVAIR	13800.4	2 Jul 68

Subject	Originating Authority	Number	Date
<p><i>ILS for Avionics Equipment, Procedures and Format for</i></p> <p><i>See Procedures and Format . . .</i></p>	AIR-4112A		2 Mar 69
<p><i>ILS of GSE on Ground Support Equipment Contracts; Procedures for</i></p> <p>This instruction outlines procedures for evaluation, definition, and inclusion of logistics requirements on GSE end article contract(s).</p>	NAVAIR	4700.6	8 Mar 69
<p><i>Integrated Maintenance Management for</i></p>	AIR-4014	AR30	10 Oct 69
<p><i>Inventory Management Policies</i></p> <p>To transmit enclosure (1) for compliance and information, as appropriate.</p>	SECNAV	4440.3A CH 1-5	24 Oct 56
<p><i>Inventory Management System Uniform Inventory Management System; Development of</i></p> <p>To promulgate policy guidance for the development and implementation of a uniform system for the inventory management of all items used by the Navy other than Bureau-cognizance items.</p>	SECNAV	4440.28	25 Apr 63
<p><i>Licensing and Training Program, ASE</i></p> <p>To implement OPNAVINST 3500.26A and outline the action required to train and license personnel in the operation and maintenance of ASE.</p>	CNARESTRA	3500.37A	19 Oct 66
<p><i>Logistical Support, Guidance for Conference Summary on Guidance for Logistical Support Requirements for TA-75 Tractor</i></p> <p>Memo</p>	AIR-4033C1		7 Jan 69
<p><i>Logistics Development Program, Operation of</i></p> <p>The program will be responsible for coordinating recruitment, formal training, job-related career development, and interim and final assignments of employees assigned to the program.</p>	NAVAIR	12330.3	8 Jan 69

Subject	Originating Authority	Number	Date
<i>Long Range Air Systems Plan, NAVAIR</i> <i>See NAVAIR Long Range . . .</i>	NAVAIR	3910.2	17 Jul 67
<i>Maintenance, Aircraft — Revised Terminology and Definition of</i> <i>See Revised terminology . . .</i>	AIR-534A/HOA		11 Apr 68
<i>Maintenance and Overhaul Contracts Items under NAVAIR Supply</i> <i>See Provisioned and . . .</i>	NAVAIR	4205.7	8 Aug 68
<i>Maintenance Engineering Program — Department of Defense Maintenance Engineering Program</i> <i>To transmit enclosure (1) DoD Directive 32321, for compliance and information as</i>	SECNAV	4100.6	7 Nov 55
<i>Maintenance Management, Integrated</i> <i>See Integrated Maintenance . . .</i>	AIR-4014	AR-30	10 Oct 69
<i>Maintenance Philosophy, CV-2461/A Tentative, Forwarding of</i>	AIR-411241/1 RES		23 Jan 68
<i>Maintenance Program, Naval Aircraft</i> <i>See Naval Aircraft . . .</i>	OPNAV	4790.2	21 Jul 70
<i>Maintenance Support Equipment Training Activities — Furnishing of Aircraft Maintenance Support Equipment to Naval Air Training Activities to Support Aircraft Transferred From Active Marine and Navy Squadrons; Policy Concerning</i>	BUWEPS	4470.2	22 Jun 67
<i>Maintenance, TC-4C Aircraft</i> <i>See Model TC-4C . . .</i>	NAVAIR	4750.1	13 Feb 68
<i>Maintenance Training Program, Naval Air, Policies and Procedures for</i> <i>See Training . . .</i>	OPNAV	1540.29	25 May 64



Subject	Originating Authority	Number	Date
<i>Management, Integrated Maintenance</i> See <i>Integrated Maintenance . . .</i>	AR-30		10 Oct 69
<i>Management of Technical Data</i> Implements NAVMATINST 4000.15, promulgates the policy, and delineates the responsibilities for the management of technical data in NAVAIR	NAVAIR	4000.9	7 Feb 69
<i>Management Policies, Inventory</i> See <i>Inventory Management . . .</i>	SECNAV	4440.3A CH 1-5	24 Oct 56
<i>Management System, Uniform Inventory</i> See <i>Inventory Management . . .</i>	SECNAV	4440.28	25 Apr 63
<i>Manual, Aeronautical Technical-Requirements Codes and NAVAIRINST 5600.7, request for clarification and changes to</i>	AIR-534A:HOA/1		9 Jan 69
<i>Manuals, Technical — Availability of</i> See <i>Complete, Accurate and Timely . . .</i>	AIR-534A/3		
<i>Manual, Technical — Management Program Preparation of</i> See <i>Technical Manual</i>	NAVAIR	5600.9	2 Apr 68
<i>Manual, Technical — Use of</i> See <i>Technical Manual . . .</i>	NAVAIR	5600.10	19 Apr 68
<i>Material Command Support Activities, Naval — Responsibilities for Specific Requirements</i> See <i>Naval Material . . .</i>	NAVAIR	3910.1B	11 Apr 69
<i>Materials System — Defense Materials System; Defense Order Ratings, Priorities, and Expediting (FOUD)</i> See <i>Defense Materials System . . .</i>	NAVAIR	4830.1A	30 Oct 68
<i>Material, Technical (NAVAIR) — Procurement of</i> See <i>Procurement of . . .</i>	NAVAIR	4420.3	16 Dec 67
<i>Milestone Checklist, Establishment and Use of</i> Defines standard milestones for NAVAIR project management purposes and promulgates a milestone checklist for determining applicable standard milestones for NAVAIR project programs	NAVAIR	5200.15	9 Nov 67

Subject	Originating Authority	Number	Date
<i>Military and Civilian Training Requirements for Contractor-Supported Training on Naval Aircraft, Weapon Systems or Components</i>	AR-25		12 Mar 68
<i>Military Essentiality Coding Program for Bureau of Naval Weapons Equipments</i> To set forth scope, criteria, and action required for the assignment of Military Essentiality Codes (MECs).	BUWEPS	4423.10	10 Dec 65
<i>Model TC-4C Aircraft; Maintenance, Supply Support, Configuration Control, and Related Instructions Concerning</i> To integrate the commercial and military aspects of the TC-4C Aircraft Support Program.	NAVAIR	4750.1	13 Feb 68
<i>NAESY, Philadelphia, Pennsylvania, Assignment of Projects, Tasks, or Funds to the NAESY, Philadelphia, Pennsylvania, Policies and Procedures for</i>	NAVAIR	5451.30	26 Nov 66
<i>NAIRS Task Force; Phase-Out Plan</i> To provide for the phased dis-establishment of the NAIRS Task Force	NAVAIR	5420	27 Jan 69
<i>NAVAIR AMMRL Program, Management and Operation of</i> Furnishes background, significant definitions, objectives, scope, overall concepts, responsibilities, standard procedures and data flow for the effective management and operation of the AMMRL Program.	NAVAIR	4420.1A	20 Sept 68
<i>NAVAIR Long-Range Air Systems Plan</i> To establish policy, procedures, and responsibilities for the coordination, preparation, and publication of a NAVAIR Long-Range Air Systems Plan.	NAVAIR	3910.2	17 Jul 67
<i>NAVAIR Representative Atlantic, Mission and Tasks of</i> To promulgate the tasks to be performed to accomplish the mission assigned by SECNAV Note 5450.	NAVAIR	5451.59	13 Dec 67
<i>NAVAIR Representative Pacific, Mission and Tasks of</i> To promulgate the tasks to be performed to accomplish the mission assigned by SECNAV Note 5450, serial 2211.	NAVAIR	5451.60	19 Sept 68

Subject	Originating Authority	Number	Date
<i>NAVAIR Supply, Items Under See Provisioned and . . .</i>	NAVAIR	4205.7	8 Aug 68
<i>NAVAIRSYSCOM — Specifications under the Cogni- zance of See Specifications Under . . .</i>	NAVAIR	4121.3	10 Jun 68
<i>NAVAIR — Stock Coordination Policies and Proce- dures for See Stock Coordination . . .</i>	NAVAIR	4420.4	4 Jun 68
<i>NAVAIR Tasks, GSE Area, Realignment of See Realignment . . .</i>	AIR-534A/76:HOA		25 Feb 69
<i>NAVAIR Technical Material and Services, Procurement of See Procurement of . . .</i>	NAVAIR	4420.3	16 Dec 67
<i>NAVAIR TECHSERVFAC, Assignment of Tasks or Resources to See Assignment of Tasks . . .</i>	NAVAIR	5451.40	24 Feb 67
<i>Naval Aircraft Maintenance Program To reorient the Naval Aircraft Maintenance Program on a three-maintenance level basis vice a six-level basis; to reaffirm command, administrative, and management relationship.</i>	OPNAV	4790.2	21 July 70
<i>Naval Air Maintenance Training Program See Training . . .</i>	OPNAV	1540.29	25 May 64
<i>Naval Material Command Support Activities; Respon- sibilities for Specific Requirements Outlines procedures relative to the responsibilities within NAVAIR when designated by the CNM as an NMC support activity for an SOR, TSOR, or ADO.</i>	NAVAIR	3910.1B	21 Oct 69
<i>Navy Inventories — Stock Coordination Responsibilities for, Policy Concerning</i>	NAVMAT	4440.37A	19 Jan 66
<i>Negotiating Supplemental Agreements for Items under NAVAIR Supply See Provisioned and . . .</i>	NAVAIR	4205.7	8 Aug 68



Subject	Originating Authority	Number	Date
<p><i>NETS Technical and Administrative Reports; Policy for</i></p> <p>Provides for the preparation, submittal and processing of NETS technical and administrative reports.</p>	NAVAIR	4730.4	9 Aug 68
<p><i>Operating Procedures, GSE — Conference Concerning</i></p>	AIR-5343/17:tal		19 Sept 67
<p><i>Order Ratings — Defense Materials System, Defense Order Ratings, Priorities, and Expediting (FOUD)</i></p> <p>See Defense Materials System . . .</p>	NAVAIR	4830.1A	29 Sept 67
<p><i>Ordering — Items Under NAVAIR Supply</i></p> <p>See Provisioned and . . .</p>	NAVAIR	4205.7	8 Aug 68
<p><i>Outfitting for Ships — Aeronautical Material Outfitting and Readiness Instructions for Ships of the Navy</i></p> <p>To specify policy of BUWEPS in providing aeronautical material and equipment to ships of the Navy, consistent with the aircraft maintenance support responsibilities assigned by BUWEPSINST 4700.2.</p>	BUWEPS	4423.3A	2 Jul 62
<p><i>Pacific, NAVAIR Representative — Mission and Tasks of</i></p> <p>See NAVAIR Representative</p>	NAVAIR	5451.60	19 Sept 68
<p><i>PAR and PAR/Repair Aircraft, Funding and Workloading of</i></p> <p>See Funding and Workloading . . .</p>	NAVAIR	4710.5	3 May 67
<p><i>PAR Program, Policy of</i></p> <p>See Progressive Aircraft . . .</p>	BUWEPS	4710.1C	13 Oct 64
<p><i>Parts Provisioning, Training — Aeronautical Requirement Training Parts Provisioning Document for NAVAIR Contracts</i></p> <p>Prescribes procedure, terms, and conditions governing the selection and furnishing of training parts, technical data, and services.</p>	AR-32		
<p><i>Parts — Replenishment Parts; Use of Data and Technical Support Required in Procurement of</i></p> <p>Promulgates policies and procedures for the Department of the Navy applicable to the use of data</p>	SECNAV	4200.20	13 Mar 63

Subject	Originating Authority	Number	Date
and the technical support required in the procurement of replenishment spare parts for all types of equipments.			
<i>Personal Services Within Naval Air Systems Command</i> Directs attention to established DoD policies and procedures on the procurement of contractor personal services using Naval Air Systems Command funds.	NAVAIR	4350.3	9 Mar 68
<i>Personnel and Training Support Requirements Information and Training Programs</i> To promulgate policies, assign responsibilities, and establish procedures for the Naval Aviation Training Program.	OPNAV	1500.11D	18 Jan 68
<i>Phase-Out Plan, NAILS Task Force</i> See NAILS Task Force	NAVAIR NOTE	5420	27 Jan 69
<i>Planning Directives, Preparation and Implementation of</i>	NAVAIR	5200.3A	6 Feb 68
<i>Planning Notes (encl. 1)</i>	AIR-4011:BLP		17 Feb 69
<i>Policy Governing the Exercise of Command and Primary Support Responsibilities Over Assigned Field Activities</i> Reference NAVMATINST 5450.3A.	NAVAIR	5451.67	20 Feb 70
<i>Policy Governing Production of NAVAIRSYSCOM Material</i> States the basic NAVAIR policy on the production of NAVAIRSYSCOM material in private industrial facilities, related in-house production matters, and the general use of certain features in applicable contracts.	NAVAIR	4801.1	28 Sept 67
<i>Priorities — Assignment of Priority for the Requisitioning and Movement of High-Value Items and for the Induction of Unserviceable Repairables, Including High-Value Items, at Navy Repair Facilities, Policy for</i>	BUSANDA	4614.2	9 Apr 65
<i>Procedures Concerning Engineering Support Services Provided to the Aviation Supply Office by Naval Air Rework Facilities</i> Establishes procedures by which ASO may obtain engineering support services from the appropriate NAVAIREWORKFAC designated the CFA by NAVAIRINST 5400.15A.	NAVAIR	5400.44	26 Nov 68

Subject	Originating Authority	Number	Date
<p><i>Procedures and Format for Preparation of ILS for Avionics Equipment</i></p> <p>Establishes the requirement for implementation of NAVAIRINST 4000.2 within the Avionics Branch and promulgates the above-mentioned procedures and format.</p>	AIR-4112/26:RVW		23 Oct 69
<p><i>Procurement of NAVAIR Technical Material and Services</i></p> <p>To ensure that all NAVAIRSYSCOM technical material and services are procured by the NAVAIR or its field activities in compliance with CNM letter of 25 Oct 1965, Bureau requirements for material and services . . .</p>	NAVAIR	4420.3	16 Dec 67
<p><i>Program Task Force, Information on</i> <i>See Documentation Improvement . . .</i></p>	AIR-415:JRS:rs		15 Nov 68
<p><i>Progressive Aircraft Rework (PAR) Program</i></p> <p>To set forth the overall Progressive Aircraft Rework (PAR) program policy.</p>	BUWEPS	4710.1C	13 Oct 64
<p><i>Provisioned and Other Unpriced Items under NAVAIR Supply, or Maintenance and Overhaul Contracts; Ordering, Negotiating, and Executing Supplemental Agreements for</i></p>	NAVAIR	4205.7	8 Aug 68
<p><i>PTAs; Procedures for Preparation and Submission of</i></p>	NAVAIR	3910.4A CH. 1	
<p><i>Provisioning, Training Parts-Aeronautical Requirement</i> <i>Training Parts, Provisioning Document for NAVAIR Contracts</i></p> <p>Prescribes procedure, terms, and conditions governing the selection and furnishing of training parts, technical data, and services.</p>	AR-32		12 Jun 68
<p><i>Readiness Instructions, for Ships</i> <i>See Outfitting . . .</i></p>	BUWEPS	4423.3A	2 Jul 62
<p><i>Realignment of NAVAIR Tasks in the GSE Area Involving the NATSF and the NAEC</i></p>	AIR-534A/76:HOA		25 Feb 69
<p><i>Recorder Reproducer, AN/AQH( )V</i></p>	AIR-41123D/10:RES		28 Feb 69
<p><i>Repair of Aircraft Support Equipment — Fiscal Procedures for the Maintenance and Repair of Aircraft Maintenance Support Equipment; Policy Concerning</i></p>	BUWEPS	7303.6	19 Jun 62



Subject	Originating Authority	Number	Date
Provides guidelines and basic procedures to be followed in allocation of funds for weapons ground support equipment maintenance.			
<i>Repair of In-Use Support Equipment — Depot Level Repair of In-Use Aviation Support Equipment</i> See Depot-Level Repair . . .	BWFRPAC	4710.11	10 Aug 66
<i>Repair Cost Estimates — Uniform Criteria for Repair Cost Estimates Used in Determination of Economical Repair</i> Implements NAVMATINST 4700.6, which standardizes the criteria and principles to be used in estimating the cost of major repairs to material to determine its eligibility or ineligibility for economical repair.	NAVAIR	4700.4	2 Aug 67
<i>Reporting Requirements — Policies and Procedures for Support of Shore Activities and Reporting Requirements for Specialized Mobile GSE General Station Collateral Equipment, Specialized Cryogenic Equipment and AVR and Activity Craft</i>	BUWEPS	11000.1B	15 Mar 66
<i>Reproducer, Recorder — AN/AQH( )V</i>	AIR-41123D/10:RES		28 Feb 69
<i>Requisitioning of High-Value Items, Priorities for</i> See Priorities . . .	BUSANDA	4614.2	9 Apr 65
<i>Revised Terminology and Definition of Aircraft Maintenance Support Equipment, General Support Equipment, Special Support Equipment, Standard Support Equipment, and Other Similar Items</i>	AIR-534A/HOA		11 Apr 68
<i>Rework — Aeronautical Components, Equipment, and Training Devices in Need of Depot Rework and/or Test; Policy, Responsibilities, and Procedures for Processing of</i>	BUWEPS	4408.3B CH. 1	28 Oct 64
<i>Section "M" Equipment — Automotive Construction and Mobile Ordnance Equipment for Deployable Fleet Marine Force Aviation Units; Instructions Concerning</i> Provides direction on the subject equipment. Enclosure 1-8.	NAVAIR	11240.3	8 Jul 68
<i>Section "M" Equipment — Reporting Requirements for Expeditionary Equipment (Section "M") for Support of Fleet Marine Force</i> Provides guidance and assigns responsibilities for the establishment and operation of a reporting	NAVAIR	11140.1	23 Oct 68

Subject	Originating Authority	Number	Date
<p>system for expeditionary equipment (Section "M")</p> <p><i>Services, NAVAIR Technical — Procurement</i> See Procurement of . . .</p> <p><i>Service Use — Approval for Service Use and Authority to Procure in Advance of Approval for Service Use, Policies and Procedures for</i></p> <p><i>Ship, Outfitting and Readiness Instructions</i> See Outfitting . . .</p> <p><i>Shipboard Allowance Lists; Policies and Responsibilities for</i> To set forth policies and establish responsibilities within the NMC for developing and providing shipboard allowance lists in accordance with OPNAVINST 4441.12</p> <p><i>Shore Installations — Shore Installations and Facilities Planning and Programming</i> See Facilities . . .</p> <p><i>Spare End Items of Support Equipment</i> Provides formal procedure for establishing initial quantities of spare end items of support equipment</p> <p><i>Specifications Under the Cognizance of the NAVAIRSYSCOM (XAS, AS, and MIL- (AS); Policies, Responsibilities, and Procedures for Preparation, Revision and Processing of</i></p> <p><i>Stock Coordination; NAVAIR Policies and Procedures for</i> To promulgate policy and procedures for material cognizance assignments of NAVAIR-controlled material and subsequent transfers of cognizance to ICPs.</p> <p><i>Stock Coordination Responsibilities for Navy Inventories, Policy Concerning</i></p> <p><i>Stock Numbers, Federal; Procedures for Obtaining</i> See Federal Stock Numbers . . .</p>	<p>NAVAIR</p> <p>NAVAIR</p> <p>BUWEPS</p> <p>NAVMAT</p> <p>OPNAV</p> <p>NAVAIR</p> <p>NAVAIR</p> <p>NAVAIR</p> <p>NAVMAT</p> <p>NAVAIR</p>	<p>4420.3</p> <p>4000.4A CH. 1</p> <p>4423.3A CH. 1</p> <p>4423.4</p> <p>11010.1D</p> <p>4423.2</p> <p>4121.3</p> <p>4420.4</p> <p>4440.37A</p> <p>4410.1</p>	<p>16 Dec 67</p> <p>8 Feb 69</p> <p>2 Jul 62</p> <p>18 May 67</p> <p>30 Jul 62</p> <p>9 Aug 68</p> <p>10 Jun 68</p> <p>4 Jun 68</p> <p>19 Jan 66</p> <p>3 Sept 68</p>

Subject	Originating Authority	Number	Date
<i>Supply — Base Supply Levels of Repairable-Type Items</i> Prescribes Navy inventory management policies incorporating the tailored supply level technique for repairable items as contained in reference DODINST 4140.20.	BUSANDA	4442.6	9 Jul 64
<i>Supply Support, TC-4C Aircraft</i> See Model TC-4C . . .	NAVAIR	4750.1	13 Feb 68
<i>Support Activities, Naval Material Command, Responsibilities for Specific Requirements</i> See Naval Material . . .	NAVAIR	3910.1B	11 Apr 69
<i>Support, ASO Weapon System — Contact and Coordination for GSE</i>	AIR-534A/14:HOA		8 Feb 69
<i>Support Equipment, Aircraft — Repair of</i> See Repair of . . .	BUWEPS	7303.6	19 Jun 62
<i>Support Equipment, Aviation — Depot Level Repair of</i> See Depot Level Repair . . .	BWFRPAC	4710.11	
<i>Support Equipment, Spare End Items of</i> See Spare End Items . . .	NAVAIR	4423.2	9 Aug 68
<i>Support Equipment Training Activities, Maintenance</i> See Maintenance Support . . .	BUWEPS	4470.2	22 Jun 67
<i>Support, Logistical — Conference Summary on Guidance for Logistical Support Requirements for TA-75 Tractor</i> Memo	AIR-4033C1	BRN	7 Jan 69
<i>Support Requirements, Personnel and Training</i> See Personnel and Training . . .	OPNAV	1500.11D	18 Jan 68
<i>Support Services, Engineering — Procedures Concerning</i> See Procedures Concerning . . .	NAVAIR	5400.44	26 Nov 68



Subject	Originating Authority	Number	Date
<i>Task Force, Program — Information on See Documentation Improvement . . .</i>	AIR-415:JRS:rs		15 Nov 68
<i>Technical and Administrative Reports, NETS — Policy for See NETS Technical . . .</i>	NAVAIR	4730.4	9 Aug 68
<i>Technical Data, Management of See Management of . . .</i>	NAVAIR	4000.9	7 Feb 69
<i>Technical Data Procurement; Policy and Procedures for Implements, within BUWEPS, its shore establish- ment, and supply demand control points when contracting for this Bureau, the policy on procure- ment of technical data as established by SECNAV- INST 4120.12 and establishes operating procedures for complying with this policy.</i>	NAVAIR	4200.15	23 Feb 61
<i>Technical Data Requirements for MK-58 Mod 0 Rocket Motor</i>	NAVAIR	AR-6A	1 Jun 70
<i>Technical Documentation, Orientation and Familiari- zation Visit; Information Concerning and Schedule of</i>	AIR-415:JRS:14		10 Mar 69
<i>Technical Manual, Management Program, Manual Pre- paration Surveillance Through In-process Review, Validation and Verification; Instructions Concerning</i>	NAVAIR	5600.9	2 Apr 68
<i>Technical Manuals; Use of, Organization, and Inter- mediate Maintenance Manuals by NAVAIREWORK- FACs.</i>	NAVAIR	5600.10	19 Apr 68
<i>Technical Manual, Aeronautical — Requirements Codes and NAVAIRINST 5600.7 Request for Clarification and Changes to</i>	AIR-534A/HOA:1		9 Jan 69
<i>Technical Manuals — Availability of See Complete, Accurate and Timely . . .</i>	AIR-534A/3		9 Jan 69
<i>Technical Material and Services, NAVAIR — Procure- ment of See Procurement of . . .</i>	NAVAIR	4420.3	16 Dec 67
<i>TC-4C Aircraft — Maintenance Supply Support, Con- figuration Control, Related Information Concerning See Model TC-4C . . .</i>	NAVAIR	4750.1	13 Feb 68

Subject	Originating Authority	Number	Date
<i>Training — Availability of Equipments for Training</i> This instruction states policy and assigns responsibilities in connection with planning for and providing equipments for training purposes	OPNAV	4490.2A	27 Apr 68
<i>Training — Naval Air Maintenance Training Program, Policies and Procedures for</i> Promulgates policies and procedures for the administration and operation of the Naval Air Maintenance Training Program in support of the requirements established by OPNAVINST 1500.11C	OPNAV	1540.29	25 May 64
<i>Training Activities, Maintenance Support Equipment</i> See Maintenance Support . . .	BUWEPS	4470.2	22 Jun 67
<i>Training and Licensing Program, ASE</i> To implement OPNAVINST 3500.26A and outline the action required to train and license personnel in the operation and maintenance of ASE.	CNARESTRA	3500.37A	19 Oct 66
<i>Training of Military Personnel Within Naval Air Re-work Facilities</i> This instruction established policy and procedures for "special aviation skill" training of Fleet, Training Command, and other shore activity personnel.	NAVAIR	1500.2	20 Mar 68
<i>Training Parts Provisioning — Aeronautical Requirement Training Parts Provisioning Document for NAVAIR Contracts</i> Prescribes procedure, terms, and conditions governing the selection and furnishing of training parts, technical data, and services.	NAVAIR	AR-32	12 June 68
<i>Training Requirements for Contract — Military and Civilian</i> See Military and Civilian Training . . .	NAVAIR	AR-25	12 Mar 68
<i>Training, Weapon Systems — Policies and Procedures</i> See Weapon Systems . . .	NAVAIR	5430.2	5 Jul 68
<i>Uniform Inventory Management System — Development of</i> See Configuration Control . . .	SECNAV	4440.28	25 Apr 63
<i>U.S. Naval Aviation Digest</i> See Weapons Systems . . .	NAVAIR	5600.12	15 Jul 68

Subject	Originating Authority	Number	Date
<p><i>VE Program; Management of</i></p> <p>To implement VE policies set forth by higher authority and to establish policies, assign responsibilities, and provide guidance for the augmentation, operation, and management of the NAVAIRSYSCOM VE Program.</p>	NAVAIR	4858.3	1 Aug 68
<p><i>Waivers</i></p> <p>See <i>Configuration Control . . .</i></p>	MIL-STD-	480	30 Oct 68
	MIL-STD-	481	30 Oct 68
<p><i>WAVAIRSYSCOM Material — Policy Governing Production of</i></p> <p>See <i>Policy Governing . . .</i></p>	NAVAIR	4801.1	28 Sept 67
<p><i>Weapon Systems, GSE for Under-Augmented Support; Procedures and Responsibilities Therefor in the General and Standard Support Equipment Area.</i></p>	NAVAIR	13800.4	2 Jul 68
<p><i>Weapon System Support, ASO — Contact and Coordinator for GSE</i></p>	AIR-534A/14:HOA		18 Feb 69
<p><i>Weapon Systems Training Policies and Procedures</i></p> <p>Background information on weapon system training and related responsibilities within NAVAIR.</p>	NAVAIR	5430.2	5 Jul 68
<p><i>Weapons Systems, U.S. Naval Aviation Digest</i></p> <p>Describes the <i>Digest of U.S. Naval Aviation Weapons Systems</i>, establishes policy for its distribution, describes its preparation, invites contributions from appropriate activities.</p>	NAVAIR	5600.12	15 Jul 68
<p><i>Workloading and Funding of PAR and PAR/Repair Aircraft</i></p> <p>See <i>Funding and Workloading . . .</i></p>	NAVAIR	4710.5	3 May 67
<p><i>WSPD; Policy, Responsibility, and Procedures for Preparation of (FOUD)</i></p> <p>To establish the use of WSPDs in project and budgeting planning.</p>	NAVAIR	13010.1A	25 Nov 68
<p><i>WSPDs; Request for Change in Format of</i></p>	AIR-5341	HEB	3 Dec 68



## CHAPTER SEVEN

### ABBREVIATIONS

This Chapter is an alphabetical listing of all the abbreviations and acronyms used in this handbook to describe support of GSE.

The Naval Air Rework Facilities abbreviations are from the ASO Master Repair List described in Section 4.8 and are different than those found in the Standard Navy Distribution List.

Abbreviations	Meaning
A/A	Approving Authority
ACCB	Aircraft Change Control Board
ACEL	Aerospace Crew Equipment Laboratory
ACO	Administrative Contracting Officer
ADMRL	Application Data Material Readiness List
ADO	Advanced Development Objective
ADP	Automatic Data Processing
ADTAKE	Addressee Take for Action
AFPRO	Air Force Plant Representative Officer
AGE	Aerospace Ground Equipment
AIRTASK	Naval Air Systems Command Task
AMMRL	Aircraft Maintenance Material Readiness List
AMO	Aviation Material Office
AMP	Acquisition Master Plan
AMSE	Aircraft Maintenance Support Equipment
AO	Administrative Office (SECNAV)
AOCP	Aircraft Out of Commission for Parts
AP	Acquisition Plan
APA	Appropriation Purchase Account
APL	Allowance Parts List
APM(L)	Assistant Project Manager for Logistics
APP	Advanced Procurement Plan
APP'N	Appropriation
APRO	Army Plant Representative Officer

Abbreviations	Meaning
ASD	Assistant Secretary of Defense
ASN(I&L)	Assistant Secretary of the Navy, Installations and Logistics
ASO	Aviation Supply Office
ASPR	Armed Services Procurement Regulation
ASW	Anti-Submarine Warfare
ATE	Automatic Test Equipment
AVCAL	Aviation Consolidated Allowance Lists
AWCLS	All Weather Carrier Landing System
BENNY SUG	Beneficial Suggestion
BIS	Board of Inspection and Survey
BIT	Built In Test
BITE	Built In Test Equipment
BOA	Basic Ordering Agreement
BOB	Bureau of Budget
BUSANDA	Bureau of Supplies and Accounts
BUWEPS	Bureau of Naval Weapons
BUWEPSINST	Bureau of Naval Weapons Instructions
CAB	CNO Advisory Board
CAR	Configuration Audit Review
CAS	Contract Administrative Services
CCB	Change Control Board
CCC	Cost Category Codes
CCCB	Component Change Control Board
CER	Complete Engine Repair
CETS	Contractor Engineering Technical Services
CD	Contract Definition
CF	Concept Formulation
CFE	Contractor Furnished Equipment
CFP	Concept Formulation Plan
CGSE	Common Ground Support Equipment
CHERRY PT	Cherry Point, N.C.
CI	Configuration Item
CM	Configuration Management
CMC	Commandant of the Marine Corps
CNATRA	Chief of Naval Air Training
CNI	Communications, Navigation, and Identification

Abbreviations	Meaning
CNM	Chief of Naval Material
CNO	Chief of Naval Operations
CNR	Chief of Naval Research
CO	(1) Change Order (2) Commanding Officer (3) Contracting Officer
COMPGEN	Comptroller General
COMPT	Comptroller
COMNAVAIR	Commander, Naval Air Systems Command
COMNAVAIRLANT	Commander Naval Air Force, U.S. Atlantic Fleet
COMNAVAIRPAC	Commander Naval Air Force, U.S. Pacific Fleet
COMRL	Command Material Readiness List
COSAL	Consolidated Shipboard Allowance Lists
CSC	Civil Service Commission
CTS	Contract Technical Services
CVA	Aircraft Carrier
CY	Calendar Year
DASA	Defense Atomic Support Agency
DCA	Defense Communication Agency
DCAS	Defense Contract Administration Service
DCASD	Defense Contract Administration Service/District
DCASO	Defense Contract Administration Service/Office
DCASR	Defense Contract Administration Service/Region
DDR&E	Director of Defense, Research, and Engineering
DESC	Defense Electronic Supply Center (DSA)
DFSC	Defense Fuel Supply Center (DSA)
DGSC	Defense General Supply Center (DSA)
DIA	Defense Intelligence Agency
DISC	Defense Industrial Supply Center (DSA)
DLSC	Defense Logistics Services Center (DSA)
DNL	Director of Naval Labs
DoD	Department of Defense
DOP	Designated Overhaul Point
DPSC	Defense Personnel Support Center (DSA)
DRB	Data Review Board
DSA	Defense Supply Agency



Abbreviations	Meaning
DT&E	Development, Test and Evaluation
DTMS	Defense Traffic Management Service (DSA)
EAM	Electric Accounting Machine
ECM	Electronic Counter-Measures
ECP	Engineering Change Proposal
EDG	Exploratory Development Goal
EDR	Exploratory Development Requirement
EMI	Electromagnetic Interference
ESO	Electronics Supply Office
ETS	Engineering and Technical Services
FFP	Firm Fixed Price
FMF	Fleet Marine Force
FSC	Federal Supply Classification
FSN	Federal Stock Number
FY	Fiscal Year
FYDP	Five Year Defense Plan
FYFS & FP	Five Year Force Structure and Financial Plan
GAO	General Accounting Office
GFAE	Government Furnished Aeronautical Equipment
GFE	Government Furnished Equipment
GOR	General Operations Requirement
GPO	Government Printing Office
GSA	General Services Administration
GSE	Ground Support Equipment
GSEINST	Ground Support Equipment Division Instruction
HERO	Hazards of Electromagnetic Radiation to Ordnance
ICP	Inventory Control Point
IFB	Invitation for Bid
IFF	Identification, Friend or Foe
IG	Inspector General
ILS	Integrated Logistics Support
ILSMT	Integrated Logistics Support Management Team
IMA	Intermediate Maintenance Activity
IMMT	Integrated Maintenance Management Team
IMRL	Individual Material Readiness List
IOL	Initial Outfitting Lists

Abbreviations	Meaning
IPB	Illustrated Parts Breakdown
JAN	Joint Army and Navy
JCS	Joint Chiefs of Staff
JIEP	Joint Intelligence Estimate for Planning
JLRSS	Joint Long-Range Strategic Study
JOP	Joint Operating Procedures
JSCP	Joint Strategic Capabilities Plan
JSOP	Joint Strategic Objectives Plan
LAMRL	Logistics Area Material Readiness List
LC	Letter Contract
LCC	Life Cycle Costing
LEM	Logistic Element Manager
LLT	Long Lead Time
LOR	Level of Repair
LRU	Line Replaceable Unit
MAC	Military Air Transport Command
MAG	Marine Aircraft Group
MAP	Military Assistance Program
MAT ACQ	Material Acquisition Group
MER	Maintenance Engineering Analysis
MEAR	Maintenance Engineering Analysis Records
MEC	Metrology Engineering Center
MCCB	Missile Change Control Board
MCL	Master Configuration Lists
MILCON	Military Construction Program
MILSCAP	Military Standard Contract Administrative Procedures
MIL-SPEC	Military Specification
MIL-STD	Military Standard
MILSTRIP	Military Standard Requisitioning and Issue Procedure
MIPR	Military Interdepartmental Purchase Request
MIS	Material Inspection Service
MMM	Maintenance and Material Management (3M)
MOD	Modification
MRC	Maintenance Requirement Cards
MRD	Military Requirement Determination

Abbreviations	Meaning
MRO	Mid-Range Objectives
MSTS	Military Sea Transport Service
MTBF	Mean Time Between Failures
MTMTS	Military Traffic Management and Terminal Service
MTTR	Mean Time to Repair
MYP	Multi-year Procurement
NADC	Naval Air Development Center
NADL	Navy Authorized Data List
NAEC	Naval Air Engineering Center
NAESU	Naval Air Engineering Services Unit
NAILSC	Naval Air Integrated Logistic Systems Center
NAMP	Naval Aircraft Maintenance Program
NAMT	Naval Air Maintenance Trainer
NARF	Naval Air Rework Facility
NASA	National Aeronautics and Space Administration
NATC	Naval Air Test Center
O&R	Overhaul and Repair
O&MN	Operation and Maintenance, Navy
OPEVAL	Operational Evaluation
OPN	Other Procurement, Navy
OPNAV	Office of the Chief of Naval Operations
OSD	Office of Secretary of Defense
OSIP	Operational and Safety Improvement Program
PAMN	Procurement of Aircraft and Missiles, Navy
PCP	Program Change Proposals
PCO	Procurement Contracting Officer
PCR	Program Change Request
PD	Planning Directive
PDP	Program Definition Phase
PGSE	Peculiar Ground Support Equipment
PM	Project Manager
PMP	Project Master Plan
PMRL	Program Material Readiness List
P/N	Part Number
PNCLA	Pensacola, Florida



Abbreviations	Meaning
PO	Program Objective/Purchase Order
PPB	Power Plant Bulletin
PPC	Power Plant Change
PR	Procurement Request
PTA	Proposed Technical Approach
AQ	Quality Assurance
QC	Quality Control
QPL	Qualified Products List
QRC	Quick Reaction Capability
QUONSET PT.	Quonset Point, R.I.
R/A	Requiring Activity
R&D	Research and Development
RDT&E	Research, Development, Test and Evaluation
RFP	Request for Proposal
RFQ	Request for Quotation
RIF	Reduction in Force
R&T	Research and Technology
SACE	Semi-Automatic Checkout Equipment
SAIMS	Selected Acquisition Information Management Systems
SATS	Short Airfield for Tactical Support
SCN	Shipbuilding and Conversion, Navy
SDCP	Supply Demand Control Point
SEB	Support Equipment Bulletin
SEC	Support Equipment Change
SECDEF	Secretary of Defense
SECNAV	Secretary of the Navy
SEL	Support Equipment List
SERS	Support Equipment Requirement Sheet
SIREP	Situation Report
SML	Support Material List
SMR	Source Maintainability and Recoverability
SMRL	Station Material Readiness List
SNDL	Standard Navy Distribution List
SNSL	Stock Number Sequence List
SOAP	Supply Operating Assistance Program
SOR	Specific Operational Requirement

Abbreviations	Meaning
SPCC	Ships Parts Control Center
SPPC	Support Planning Policy Conference
SRA	System Replaceable Assembly
STOL	Short Take-Off and Landing
TDP	Technical Development Plan
TEC	Type Equipment Code
TFG	Tentative Force Guidance
TMCR	Technical Manual Contract Requirement
TMMT	Technical Manual Management Team
TSOR	Tentative Specific Operational Requirement
UR	Unsatisfactory Material/Condition Report
VE	Value Engineering
VECP	Value Engineering Change Proposal
VTOL	Vertical Take-Off and Landing
WBS	Work Breakdown Structure
WEP	Weapons Engineering Plant
WPRD	Weapons Personnel Research Division
WRA	Weapons Replaceable Assembly
WSPD	Weapon System Planning Data
WSS	Weapon System Support
WUC	Work Unit Code
ZD	Zero Defects
NATSF	Naval Air Technical Service Facility
NAVAIR	Naval Air Systems Command Headquarters
NAVAIRDEVCON	Naval Air Development Center, Johnsville
NAVAIRINST	Naval Air Systems Command Instruction
NAVAIREWORKFAC	Naval Air Rework Facility (NARF)
NAVAIRSYSCOM	Naval Air Systems Command (includes headquarters and field activities)
NAVAIRSYSCOMREP	Naval Air Systems Command Representative
NAVAIRSYSCOMREPLANT	Naval Air Systems Command Representative, Atlantic Fleet
NAVAIRSYSCOMREPAC	Naval Air Systems Command Representative, Pacific Fleet
NAVAIRTECHSERVFAC	Naval Air Technical Services Facilities (NATSF)
NAVAIRTESTCEN	Naval Air Test Center, Patuxent River
NAVCOMPT	Naval Comptroller

Abbreviations	Meaning
NAVELEX	Naval Electronics (Systems Command)
NAVFAC	Naval Facilities Engineering Command
NAVPLANTREP	Naval Plant Representative
NAVPLANTREPO	Naval Plant Representative Office
NAVMAT	Naval Material Command
NAVORD	Naval Ordnance (Systems Command)
NAVSEC	Naval Ships Engineering Command
NAVSHIPS	Naval Ships (System Command)
NAVSUP	Naval Supply (Systems Command)
NAVTRANSCO	Navy Transportation Coordinating Office
NCPI	Navy Civilian Personnel Instructions
NIF	Navy Industrial Fund
NMC	Naval Material Command
NMCSA	Naval Material Command Support Activity
NMMM	Navy Maintenance and Material Management System (3M Program)
NMS	Naval Mid-Range Study
NIPS	Naval Intelligence Processing System
NICRISP	Navy Integrated Comprehensive Repairable Item Scheduling Process
NLRSS	Navy Long-Range Strategic Study
NOAP	Navy Oil Analysis Program
NORIS	North Island, Calif.
NPE	Navy Preliminary Evaluation
NPPO	Navy Program Planning Office
NPR	Naval Plant Representative
NPRO	Naval Plant Representative Office
NRR	Naval Research Requirement
NSA	Navy Stock Account
NSD	Navy Support Date/Naval Supply Depot
NSP	Navy Support Plan
O/A	Ordering Activity
OCMM	Office of Civilian Manpower Management
O/H	Overhaul



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